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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

EMMA KOE, et al.,	)	
	)	
Plaintiffs,	)	
	)	Civil Action
V.	)	No. 1:23-CV-02904-SEG
	)	
CAYLEE NOGGLE, et a.,	)	Volume 1 of 2
INC., ET AL,	)	
	)	
Defendants.	)	

Transcript of proceedings
before the Honorable Sarah E. Geraghty,
United States Magistrate Judge
August 10, 2023.

A P P E A R A N C E S:

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Proceedings recorded by mechanical stenography, transcript produced by computer.

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I N D E X

PROCEEDINGS

THE COURT: This is case number 23CV2409.

We are here for a hearing on the Plaintiffs' Motion for a Preliminary Injunction.

Counsel, can you please announce your appearances, starting with the Plaintiffs.

MR. BRADSHAW: Good morning, Your Honor. Ben Bradshaw from O'Melveny & Myers for the Plaintiffs.

THE COURT: Good morning.

MR. MCINTYRE: Good morning, Your Honor. Steven Mcintyre from O'Melveny & Myers.

MS. GARAGIOLA: Good morning, Your Honor. Meredith Garagiola with O'Melveny & Myers, also for the Plaintiffs.

MS. WEAVER: Good morning. Cynthia Weaver with the Human Rights Campaign Foundation.

MS. LITTRELL: Good morning, Your Honor. Beth Littrell with the Southern Poverty Law Center, also for the Plaintiffs.

MS. ISAASCON: Cory Isaacson with the ACLU Foundation of Georgia.

MR. BUCKLEY: Good morning, Your Honor. Ed Buckley for Nancy Doe and Linda Doe.

MR. MEW: Good morning, Your Honor. Tom Mew also on behalf of the Doe Intervenors for the Plaintiffs.

MR. STRAWBRIDGE: Good morning, Your Honor. Patrick

Strawbridge with Consovoy McCarthy for the Defendants.

MR. HARRIS: Good morning, Your Honor. Jeffrey Harris with Consovoy McCarthy for the Defendants.

MS. BATES: Good morning, Your Honor. Tiffany Bates with Consovoy McCarthy for the Defendants.

THE COURT: All right. Good morning to all and welcome.

I'd like to hear from both sides about your plans for today and tomorrow, including the number of witnesses that you all intend to call and about how long you think it will take you to present your evidence.

I know you've been in touch with the Courtroom Deputy about these matters but I also know that things can change as you gear up for a hearing.

So let me hear from counsel for Plaintiffs first.

MR. BRADSHAW: Thank you, Your Honor.

Ben Bradshaw.

We will start with -- our first witness will be Dr. Shumer and we anticipate roughly 45 minutes on direct with Mr. Shumer. Of course, then, defense will have the opportunity to cross Mr. Shumer and we may do some redirect.

Following Dr. Shumer, we will then present Dr. McNamara. Meredith McNamara will be our second witness and the same allocation of time, roughly 45 minutes on direct is what we anticipate. And then, of course, the Defendants

will have the opportunity to cross.

THE COURT: All right.

MR. BRADSHAW: By agreement with the other side after Dr. McNamara, even though it's somewhat out of order, the Defendants will present two witnesses because they are only available today and I can let counsel address that.

THE COURT: Sure.

MR. BRADSHAW: I think our expectation, just in terms of the big picture for today, is that we get through the two witnesses for the Plaintiffs, Dr. Shumer and Dr. McNamara we get through two witnesses for the Defendants, Dr. Hruz and Dr. Cantor. That would be, I think, making good progress, if we were able to do that.

Then that would leave for tomorrow we would start going back to our last witness, Dr. Massey. We will start the day with Dr. Massey. And then in terms of witnesses after Dr. Massey, Defendants would have Dr. Laidlaw, who would be their final witness.

So three witnesses, expert witnesses, on both sides. After that, we would reserve the right to recall one of our witnesses in rebuttal. Of course, that would count against our time, but we would like to reserve that right.

THE COURT: Okay.

MR. BRADSHAW: And then by agreement, Your Honor, we have set aside 30 minutes per side for closings.

THE COURT: All right. What about openings, if you all would like to make an opening?

MR. BRADSHAW: We have agreed amongst ourselves to dispense with openings.

THE COURT: That's fine with me.

MR. BRADSHAW: We don't think we need them, given that you have the papers.

THE COURT: Yes, sir.

MR. BRADSHAW: And you have the expert reports.

THE COURT: Okay. That sounds just fine with me. I've read all the briefing and I have your expert affidavits. So, yeah, that makes good sense.

MR. BRADSHAW: Before I -- then I will let counsel -- there are just a couple of other housekeeping issues. You might be wondering what those binders are in front of you. We have prepared -- so both sides have prepared preset of exhibits that neither side objects to their admission, so you have a binder, one with the Plaintiffs' exhibits and one with the Defendants' exhibits, so those are in front of you. We've also put them over by the witness bay, and I think the Clerk has one as well.

THE COURT: I appreciate that. Thank you.

MR. BRADSHAW: The one thing that's not in there are the expert reports themselves because they had already been filed. We assumed that the Court didn't need them, so we have

put them in a separate binder in front of Your Honor.

THE COURT: I have them. Thank you very much.

MR. BRADSHAW: Then the final thing, and then I will sit down, is that Intervenors' counsel is here. I just wanted to make sure that the Court understands that they will -- they are joining in the Motion for Injunctive Relief and have filed a separate motion to that effect.

THE COURT: Yes, I saw that.

MR. BRADSHAW: Thank you, Your Honor.

THE COURT: All right. Thank you.

Counsel for the Defendants.

MR. STRAWBRIDGE: Thank you, Your Honor. Good morning.

THE COURT: Good morning.

MR. STRAWBRIDGE: Mr. Bradshaw walked through, I think, most of the relevant information. Cross-examinations are a little hard sometimes to tell how long it will go. We would anticipate, you know, probably an hour or less for cross-examination for their witnesses this morning.

The direct testimony that we intend to present this afternoon, I think 30 to 45 minutes is probably a good estimate. And, you know, I think the estimate on time is probably right. I think both sides are prepared to present any additional witnesses, today if we get to them. Obviously sort of see where we go as the day goes on.

THE COURT: Okay.

MR. STRAWBRIDGE: I guess the only other comment I would make with respect to the exhibits, I don't know that we would actually like mark them as an admission set of exhibits. And if the Court would like us to do that, I'm sure we can arrange to put stickers on them and mark them, otherwise. If necessary, we can work with the Clerk or the court reporter.

THE COURT: Okay. I will keep that in mind. We'll see how it goes.

MR. STRAWBRIDGE: Sounds great. I don't think there is anything else to talk about.

THE COURT: Okay. Before we get started, if I might see one representative of each side. I wanted to briefly address a security-related matter with counsel. So if you might come up here, please.

(the following discussion was held at the bench between the court and counsel.)

THE COURT: I received a visit from the U.S. Marshals Office yesterday. The representative of the U.S. Marshals Office received a communication from an Agent Denson who was calling with a request on behalf of one of the Plaintiffs' expert, Dr. Massey. This person was asking for permission to bring weapons into the courthouse and to come in by way of a secured exit and be designated a certain room in the courtroom for Dr. Massey's protection.

The Marshals Service representative asked me if I knew anything about this. I said I did not. The Marshals Service is going to proceed according to its usual protocols, but there was some concern about the fact that this person represented himself as an agent, which connotes -- could connote FBI or ATF. It appeared to have been -- I think this was a representative of a private security firm and, you know, this is just because I would want to know if I were in your shoes. I think the issue has been resolved but just FYI if there is something I need to know, I assume you would let me know.

MR. BRADSHAW: We will let you know. I don't think there is anything you need to know. I know that Dr. Massey has concerns.

THE COURT: Sure.

MR. BRADSHAW: But I think the issue is resolved. I don't think there is anything.

THE COURT: Okay.

MR. BRADSHAW: He is here today.

THE COURT: Okay. Thank you. All right. You may present your first witness.

MR. MCINTYRE: Thank you, Your Honor.

The Plaintiffs call Dan Shumer.

COURTROOM DEPUTY: Sir, if you would please stand and raise your right hand.

DANIEL SHUMER,

a witness herein, having been first duly sworn, was examined and testified as follows:

COURTROOM DEPUTY: Thank you. You may be seated.

Sir, I just want to remind you it's very important that everybody in the court can hear your testimony, so please remember to speak directly into the microphone.

And if you could please at the moment state and spell your first and last name for the record.

THE WITNESS: Daniel Shumer. D-a-n-i-e-l S-h-u-m-e-r.

COURTROOM DEPUTY: Thank you, sir.

DIRECT EXAMINATION

BY MR. MCINTYRE:

Q Good morning, Dr. Shumer. Would you please share your profession with the court.

A I'm a pediatric endocrinologist.

Q What does a endocrinologist do?

A Endocrinology is science related to hormones.

Q Can you please tell the Court about your education and training.

A I received my Medical Degree at Feinberg School of Medicine at Northwestern University.

Afterwards I was a pediatric resident and chief resident at Vermont Children's Hospital in Burlington, Vermont.

Subsequently, received a Fellowship in Pediatric Endocrinology at Boston Children's Hospital, and concurrent with that, a Masters of Public Health from Harvard's T.H. Chan School of Medicine.

Q What positions do you currently hold?

A I'm an Associate Professor of Pediatrics at the University of Michigan. I'm the Clinical Director of the Child and Adolescent Gender Clinic at Mott Children's Hospital at Michigan Medicine. I am the Medical Director for the Comprehensive Gender Services Program at Michigan Medicine, which is the health system of organized care for transgender adult and pediatric patients.

Q And do you have clinical responsibilities at Michigan?

A Yes. I'm a pediatric endocrinologist. I take of patients with endocrine disorders.

Q I believe you mentioned you work in a clinic. Do I have that right?

A Yes. I work at the Child and Adolescent Gender Clinic, which serves patients referred for gender-related concerns.

Q What are your responsibilities at the clinic?

A So as a clinician in the clinic, I test and manage patients, and as the Clinical Director of that clinic, I help program how the clinic provides care.

Q What kinds of conditions do you treat at the clinic?

A So as a pediatric endocrinologist, I treat patients with

endocrine disorders such as diabetes and other gender-endocrinology problems in the Child and Adolescent Gender Clinic and focus on patients with gender dysphoria.

Q And just so we are clear, what is gender dysphoria?

A Gender dysphoria is -- when a person has gender dysphoria, they have a difference between their gender identity and their assigned sex at birth. That difference is persisting over time and that difference causes significant distress in a person's life, such as impairment at school and other social situations.

Q What is the age range of the Clinic's patient population?

A Patients with gender dysphoria may be referred at any age in childhood, but primarily we are seeing patients around the beginning of puberty to 18. So roughly 10 to 18.

Q And how many patients have you personally treated for gender dysphoria?

A Over 400.

Q Can you describe the age range of the patients that you personally see?

A Generally patients between the age 8 to 23.

Q Do you conduct any research activities at Michigan?

A I do.

Q Will you please describe your research activities.

A Primarily the research activity involves the treatment of gender dysphoria and mental health outcomes in patients that

identify as transgender.
Q Have you published any peer-reviewed articles in the field of transgender medicine?
A I have.
Q Approximately how many?
A I would say approximately 20.
Q And can you give us a general idea of the topics that you have published on.
A Most of the work that I have published has involved the management of gender dysphoria.
Q I would like to go over some basic concepts.
What is gender identity?
A Gender identity is a deeply felt sense of one's self as a boy, girl, a man, a woman on a gender perspective.
Q Where does one's gender identity come from?
A Gender identity is a deeply-felt internal sense of one's self that is based in biology.
Q How, if at all, does gender identity differ from sex?
A Sex is a way that we attempt to categorize people into male and female categories. There are many components to sex, including anatomic sex, chromosomes, hormones and gender identity. So gender identity is part of the definition of sex.
Q Doctor, are you familiar with the term assigned sex?
A Yes.

Q What is your understanding of that term?
A Assigned sex refers to after a baby is born, typically by looking at the external genitalia, determining that that baby is a boy or a girl.
Q And what does it mean to be transgender?
A Someone is transgender if their gender identity doesn't match the sex that was assigned at birth.
Q Is there any relationship between being transgender and having gender dysphoria?
A Yes. Someone who is transgender may have gender dysphoria, if the difference in their gender is causing clinical distress.
Q Where do the criteria for a diagnosis of gender dysphoria come from?
A They come from the Diagnostic and Statistical Manual published by the American Psychiatric Association.
Q Is that authority sometimes referred to as the DSM-5?
A Yes.
Q Can children and adolescent patients be diagnosed with gender dysphoria?
A Yes.
Q Have you personally diagnosed adolescent patients with gender dysphoria using the DSM-5 criteria?
A I have.
Q Can you please describe how health care providers go

about determining whether a child or adolescent patient satisfies the criteria for gender dysphoria?

A A medical provider conducts a clinical interview with the patient and also with their parents or other collaterals in their life to understand their gender identity, how that gender identity affects them in the world, and in the process of that conversation or examination, the diagnosis of gender dysphoria would be affirmed or not.

Q Are these the sorts of evaluations conducted at the clinic at which you work?

A Yes.

Q Have you personally participated in any such examinations?

A Yes. In our pediatric gender clinic, the first assessment is done by one of our medical health providers, and then the patients that meet criteria for the diagnoses of gender dysphoria is assessed by them, would see the medical providers where that diagnosis is reaffirmed.

Q Is gender dysphoria treatable?

A Gender dysphoria is not a treatment medical problem.

Q And what is your basis for saying that?

A Extensive literature outlining the treatment of gender dysphoria, as outlined in, for example, the World Professional Association for Transgender Health Standards of Care, the Endocrine Society Clinical Practice Guidelines, in addition to

my clinical experience treating hundreds of children with gender dysphoria and seeing their dramatic improvement over time.

Q Doctor, can you please explain why there is a clinical need to treat gender dysphoria in adolescent patients?

A I think that patients with gender dysphoria can suffer and the goal of medicine in general is to improve health. So a patient with any diagnosis that has an effective treatment should be offered that treatment in order to promote health. In gender dysphoria patients that are suffering from gender dysphoria and receive adequate treatment can have dramatic improvement in health and that's the basis for the need for treatment.

Q What is the treatment for gender dysphoria?

A I think first it's important to understand the patient's gender dysphoria, what's the sources of the distress, how it's affecting them in order to come up with a treatment plan. That treatment plan may include social support, social transition and medications as well as including puberal suppression or hormones.

Q As a clinician, do you treat children with medications when it comes to gender dysphoria?

A Prior to the onset of puberty, there is not a medical intervention that would be required. Puberty is a time where we start making sex hormones. And prior to that time, there

would be no hormones to block or to provide it. So a prepuberal child, a child who hasn't entered puberty, would not be provided a medical intervention for gender dysphoria.

Q Thank you. Doctor, let's take a step back.

Where do these treatments come from?

A Pediatric endocrinologists use both the World Professional Association for Transgender Health Standards of Care, the most recent version is Version 8, and the Endocrine Society Clinical Guidelines.

Q And you mentioned the World Professional Assocation of Transgender Health. Is it your understanding that that organization is also referred to as WPATH?

A Yes.

Q Thank you. Do you follow the WPATH Standards of Care and the Endocrine Society Clinical Guidelines in your own practice?

A I do.

Q Doctor, can you speak to the level of support these treatments have in the medical community?

A Providers in my field rely on those guidelines for clinical practice. All major medical associations in the United States use it, including the American Academy of Pediatrics and the American Psychiatric Association endorse the use of those guidelines for the treatment of gender dysphoria in adolescents.

Q Is there a concern that these treatment standards are based on low-quality evidence?

A The treatments are based on extensive evidence that outline safety and advocacy.

Q Doctor, do you agree that there is a debate within the medical community about the safety and efficacy of gender-affirming medical care?

A I would argue that mainstream clinicians in the field of pediatric endocrinology are not debating the basic standards of care but rather some components of gender-affirming care do exist.

Q I know you touched on this a moment ago, but can you please walk us through the process of treating an adolescent patient who has been diagnosed with gender dysphoria.

A Yes. Once the patient is diagnosed with gender dysphoria, as I said, the clinicians work with the patient and family to understand the sources of that distress and what might be helpful in treatment.

A patient in early puberty is starting to develop secondary sex characteristics, meaning differences that come with testosterone or estrogen production. And in that process, gender dysphoria can oftentimes be exacerbated as a patient is going through puberty that is different from the gender identity that they affirm.

In that case, puberal suppression could be considered as

a way to stop the progression of that dysphoria using puberty and also to make a decision regarding hormonal care.

Q What kind of medications are used for puberal suppression?

A The name of the medications are called GnRH agonist.

Q Are GnRH agonist puberty blockers?

A Yes.

Q Can you help us understand what GnRH agonist are?

A Yes. I think it's first important to understand the science of puberty.

Puberty starts with messages from the hypothalamus which is part of the brain from GnRH which secrets impulses. Those impulses induce a pituitary gland to make other hormones and it's those impulses and those hormones that then tell the testees or ovaries to make sex hormones. GnRH agonist interferes with that GnRH production. And in so doing, the end result of the production of testosterone or estrogen no longer is happening.

Q What conditions are GnRH agonist used to treat?

A In addition to gender dysphoria, GnRH agonist are most often used in pediatrics to treat puberty.

Q So when it comes to treating gender dysphoria specifically, what purposes do GnRH agonist serve?

A On the basic level, they are delaying puberty, which is done because for that particular patient, it's been determined

that progression of puberty is worsening gender dysphoria or ultimately impairing health.

Q And for how long do transgender adolescent patients typically receive GnRH agonist?

A Most typically for two to three years.

Q Why is that?

A After a treatment with -- during treatment with GnRH agonist, the patient continues to get older and mature and the conversation then turns to what comes next for the monitoring or persistence of that patient's gender identity, their understanding of puberty, and at some point, a decision needs to be made to either start testosterone or estrogen or if gender identity has changed, to withdraw for GnRH agonist and allow for natal puberty to continue. That prolong use of GnRH agonist has -- there is some contention about that as well. Artificially delaying puberty for longer than necessary does not -- is not recommended.

Q What are the concerns that come from using GnRH agonist on a prolonged basis?

A There are several.

One is that a patient that is using GnRH agonist, as their peers are going through puberty, may struggle with being now the only kid that's transgender and not going through any puberty.

And also puberty is important not only for the

development of sex characteristics. Puberty is important for how we grow, bone density strengthening, and so we do need to go through puberty. Delaying puberty indefinitely has negative mental health and physical health risks.

Q Doctor, are you aware of any medical evidence that would support using GnRH agonist until a patient reaches the age of 18?

A No. I would have concerns using GnRH agonist that long.

Q And I believe you mentioned, doctor, that at some point after a patient is no longer on GrHN agonist, hormone therapy is considered.

Do I have that right?

A Yes.

Q When do these discussions typically begin?

A I think it's important to talk about puberty and hormones, even when making the decision to start GnRH agonist, because GnRH agonist is really a bridge to another decision point, which may be testosterone or estrogen.

So at the beginning, we are talking about testosterone or estrogen, but going forward someone being treated with GnRH agonist would -- at another visit, we would be -- we would have gender identity, gender dysphoria symptoms, and those appear.

And then, to more specifically answer your question, in that 13-to-16-age window, sometimes the discussion turns to

testosterone or estrogen treatment.

Also there are many patients that present to the clinic after puberty or in mid-adolescence, and in those patients, we're not discussing puberal suppression. Puberty has already concluded. We're having a session more about testosterone or estrogen interactions.

Q And when you are having these discussions, what factors are considered when deciding whether it's appropriate for the patient to begin hormone therapy?

A I think most importantly is the patient's gender identity and gender dysphoria and whether or not hormone intervention would be beneficial.

Also, the patient themselves need to demonstrate an understanding of puberty and what the hormone interventions are intended to do and provide that consent.

Parents also provide consent and there must not be other medical or mental health problems that may interfere with the patient's ability to understand or to receive the care.

Q Ultimately, who makes the decision about whether a patient should be given hormone therapy?

A Well, it's a team that's led by the patient and their parents. So the patient is making a decision with the consent of the parents and with the provider prescribing, if it's appropriate.

Q Can you please describe what hormone therapy actually

consists of.

A Hormone therapy consists of the use of testosterone or estrogen with the intention of bringing the testosterone or estrogen level up into the normal range for a young man or a young woman that age with the idea of mimicking the normal timing and tempo of puberty changes to allow a patient to develop secondary sex characteristics in keeping with their affirmed gender identity.

Q Aside from testosterone or estrogen, would hormone therapy entail the administration of any other medications or other hormones?

A There may be other medications, other than testosterone or estrogen, for example, in trans boys taking testosterone, they may still be having periods that cause distress and medication may be used to address that.

For trans girls, estrogen or other anti-hemorrhaging medications will be used in combination with the estrogen in order to achieve that normal female level of estrogen and testosterone for the patient.

Q Do clinicians use hormone therapy to treat any conditions besides gender dysphoria?

A Yes.

Q What conditions?

A Endocrinologists use estrogen and testosterone primarily in adolescents who are not able to make their own testosterone

or estrogen or not able to make an appropriate amount. Those conditions would be a case of male patients not able to make enough testosterone, maybe because they have bilateral insufficiency or they've lost testees or they have a condition called Klinefleter's Syndrome.

Female patients that aren't able to make enough estrogen. You know, examples would include a condition called Ovarian Insufficiency where the ovaries stop making estrogen or Turner Syndrome, a condition where the ovaries don't make adequate estrogen to a chromosomal difference.

Q In your opinion as a medical professional doctor, is hormone therapy an effective treatment for the treatment of gender dysphoria in adolescents?

A Yes.

Q What is your basis for saying that?

A Extensive evidence outlining the use of hormones in treatment of gender dysphoria in addition to my clinical experience using those medications.

Q And in your opinion as a doctor, is hormone therapy a safe treatment for gender dysphoria in adolescents?

A Yes.

Q What is your basis for saying that?

A Similarly, there is extensive literature outlining the use of medication regarding safety profiling gender dysphoria. We also have experience using these medications as we have

discussed in other conditions. And, again, the clinical experience that I have treating patients with these medications. They are provided in a way that patients have effective response to their gender dysphoria and improve their quality of life.

Q Can you describe for us the -- what you see in your patients as a clinician as they are treated with hormone therapy?

A I think as a pediatric endocrinologist who takes care of a lot of patients with gender dysphoria, I have the joy of seeing patients that initially come into the clinic very anxious, really struggling, maybe not a lot of hope for the future. But then, over time, I watch patients flourish and grow.

One of my favorite visits is the visit at the time that we were transitioning a patient to adult care and watching patients launch out into the world, starting families, getting jobs, living happy, healthy productive lives that they may not have been able to picture at that first visit.

Q When a patient decides to pursue hormone therapy, what procedures or protocols do his or her health care providers follow?

A When a patient is referred to the Child and Adolescent Gender Clinic, the first thing that happens is a phone call with our social worker to learn a little bit more about why

the patient is coming to see us, what services and what questions might they have.

If the patient is struggling with gender identity, a biosocial assessment is performed where the patient's gender identity is elucidated, both from them, the parents' experiences with the patient's gender identity, and in the process of that biosocial assessment, the diagnosis of gender dysphoria may be made.

And also other health problems could be identified. And then from there, a medical visit would follow to continue to understand the patient's gender identity, their goals, and understand whether or not a medical intervention may or may not be helpful, discussing that in more detail and making those decisions together.

Q And once the patient begins hormone therapy, are there any follow-up visits that you provide?

A As with any medical problem that's requiring treatment, there's a follow-up plan where a patient comes back and at that visit, we re-evaluate the patient's gender identity, gender dysphoria symptoms, and their goals, and, then, monitoring labs to understand if the doses of the medications that we're prescribing needs adjustment, and then make the plan for continued follow up.

Q Doctor, has the U.S. Food and Drug Administration approved the use of hormone therapy for the treatment of

gender dysphoria in adolescents?
A The use of medications to treat gender dysphoria are used off label, not approved by the FDA.
Q Is it unusual in the practice of medicine to use medications off label?
A It is not unusual. It is a common practice to use medications that are approved for one indication for another indication, provided that there's evidence to support the safe and effective use of that medication for a particular intervention.
Q So what basis do you have as a medical doctor for using hormones off label to treat adolescents who have been diagnosed with gender dysphoria?
A I do that based on the evidence supporting our use as outlined in extensive literature, which has been subsequently summarized by WPATH and the Endocrine Society. Those guidelines are followed by pediatric endocrinologists across the country and around the world.
Q Is hormone therapy an experimental treatment for gender dysphoria in adolescents?
A No.
Q Does hormone therapy have any side effects?
A Just like all medications, hormones have side effects. Specific to testosterone or estrogen, we are learning that testosterone or estrogen level up into the normal male or

female range. So oftentimes I think about, well, what does -- what is the risk of being a man or being a woman comparatively.

One example that I often use with families with testosterone, is if you never start testosterone, the chance that you will go bald is very low. On testosterone, your risk for baldness is probably very similar to other men in your family.

And, you know, for estrogen, for example, men that don't have breasts have very little risk of breast cancer. Women have a higher risk of breast cancer. So a person starting estrogen, that person would have a higher risk of breast cancer compared to not having estrogen at all. It turns out that the risk seems to be a bit lower in other women. Because of that, any women with breasts that have those breasts treatments with estrogen would need the same mammogram screens as any other woman with breasts.

In addition to that, if a person has excessively-high testosterone or estrogen levels, then that can cause other concerns. So excessively-high testosterone for anyone, for example, could lead to higher red blood cell counts, which is called polycythemia. Excessively-high estrogen levels has a higher risk for blood clotting problems. And so, we are monitoring patients' hormone levels when treating with testosterone or estrogen, whether it's for gender dysphoria or

for other medications in order to make sure that we're achieving normal levels for that person's age and adjusting the doses as need.

Q Does hormone therapy impair a patient's fertility?

A If someone is taking testosterone or estrogen, that medication does speak back to the pituitary gland and makes it less likely that, for example, a person would become pregnant or contribute to a pregnancy.

That being said, I always remind my patients that testosterone or estrogen is not birth control. And patients, including examples from my own panel, have become pregnant on hormones or contributed to pregnancy while taking estrogen. Someone who is desiring pregnancy, having had taken hormones for an extended period of time, I would recommend that person withdraw from hormones, for estrogen levels to rise for a trans man or for testosterone levels to rise, if it was a transgender woman in order to be more successful at achieving fertility.

There may be some folks that have been treated with hormones for an extended period of time where that treatment was initially for fertility. Of course, all people have variable fertility potential in the first place. And so the fact that hormone interventions may have that impact on fertility is something that is important to discuss with patients and families.

Q So what about in a case of a patient who begins on puberty-blocking medication and then proceeds to hormone therapy and never went through puberty consistent with their assigned sex? Is that patient's fertility permanently impaired?

A That patient would need to go through natal puberty in order to attempt fertility. So if a patient in that situation were desiring fertility, I would advise withdrawal from medication and progression through natal puberty. Anyone with gonads, I would not say has no fertility potential, but that person would have to go through that sequence of steps in order to obtain fertility.

Q And have you actually seen patients go through that sequence of steps?

A I have seen patients that desire fertility stop the medications and achieve it.

Q If a transgender patient takes hormones for a time but then stops, are there any other -- let me rephrase that. If a transgender patient takes hormones for a period of time and then stops, are there any permanent effects?

A Yes. Some of the effects of both testosterone or estrogen, I would describe as more permanent and some I would describe as less permanent or non permanent.

For testosterone specifically, when testosterone changes the shape of the vocal cords and the voice deepness, if

someone were to withdraw from testosterone, the voice would stay deeper. Other changes like muscular changes would fade as someone withdraws from testosterone.

Estrogen, a specific example of a more permanent change would be breast development and an example of a less permanent change would be change to the skin or change to their body shape.

Q Given that some of these effects would be permanent, why not wait until a patient reaches adulthood to decide whether or not they should pursue hormone therapy?

A The fact is that puberty happens in adolescents, and as puberty that is the driver of significant gender dysphoria for adolescents. So by treating at the time of puberty, there can be a dramatic difference in outcome for a patient that by, for example, arresting someone's puberty using GnRH agonist and not allowing progression of the unwanted puberty of the development of unwanted secondary sex characteristics for that patient is that area for the rest of their life could have dramatic improved quality of life following that improvement for that patient. That withholding those medications until 18, we're missing that critical window of addressing gender dysphoria during puberty, which can have life-long consequences.

Q In your clinical practice, how do you address the risks and effects of hormone therapy with your patients?

A I think doctors are quite skilled at doing this because we do this all the time for many, many different medical problems. But whenever any medication is considered, we're -- first, why are we considering the medication? What medical problems is it being used to address? How does the medication work? What are we hoping the medication may do? What potential benefits would that particular medication have? How is that medication taken? What are some things that may happen that we wouldn't want to happen or side effects of the medication?

And by explaining those things in an age-appropriate way to a patient and answering questions that the patient or the family have, we're able to make a shared decision with patients and their families around medical decisions. That's how I work with patients with diabetes, with other problems, and also patients with gender dysphoria.

Q As a pediatric endocrinologist, do you have an opinion on whether it is ethical to deny transgender adolescents access to hormone therapy?

A I do not consider that ethical.

Q Why not?

A Because gender dysphoria is a condition that has a known treatment, of course, that is safe and effective. And that by withholding a safe and effective treatment for a condition, we're not maximizing the health of the patient.

Q Is there a risk in adolescents who receive hormone therapy and develop sex characteristics inconsistent with their assigned sex will come to regret that decision?
A Having regret is extremely uncommon. But, of course, when we're having a conversation about the risks and benefits of intervention, we are talking about the permanent and non-permanent impacts of hormone intervention. A discussion about that is had and there are certain people out there that -- in the world that have talked about their regret but in terms of numbers, the numbers are very, very low.
Q What is your basis for saying that regret is uncommon; the numbers are very low?
A Again, it's the literature where they get treatment for gender dysphoria and experience.
Q Doctor, are you familiar with the legislation known as Senate Bill 140 or S.B. 140?
A Yes.
Q What is your understanding of what S.B. 140 does?
A I understand that S.B. 140 oppose use of hormone and estrogen to treat gender dysphoria until the age of 18.
Q Are you aware of any medical evidence that would support the use of puberty blockers to treat gender dysphoria in adolescents without the option of hormone therapy?
A That has never been described to my knowledge. I think that if I were practicing in a place where hormone puberal

suppression was available without hormones, I would have no problem prescribing puberal suppression in the first place. Without an exit ramp, it's a bridge to another decision point as part of a series of treatment options. And so, I would only be prescribing GnRH agonist, if the parents were actively trying to find treatment.

Q Would it be consistent with the WPATH Standard of Care and the Endocrine Society Clinic Guidelines to treat a patient with puberty blockers until they reached the age of 18?

A No.

Q In your opinion, would it be ethical to treat a patient with puberty blockers until they reached the age of 18?

A No. I think the treatment of puberty blockers until the age of 18 would be unsafe from a mental health and medical health perspective.

Q Dr. Shumer, as a pediatric endocrinologist, do you have an opinion on the effects that S.B. 140 will have on transgender adolescents within the State of Georgia?

A I am concerned that it would have devastating effects on patients with gender dysphoria.

Q What is the basis for your concerns?

A It's clear that untreated gender dysphoria leads to negative mental health consequences, including estrogen progression, anxiety, even self harm and suicidality and by withholding effective treatment for the condition, my concern

is that untreated gender dysphoria would lead to those negative mental health outcomes.

Q In your practice, do you ever have a chance to interact with patients or families who have been affected by laws that restrict their access to gender-affirming care?

A More recently I have. Patients have been coming to Ann Arbor for care where they have had trouble receiving care. Oftentimes, becoming very fearful that the care that either they may need or are already receiving or may need access to is no longer going to be available for their child and described it as a place that they may love to find the care that's needed for themselves or their child.

MR. MCINTYRE: Thank you very much, Dr. Shumer.

No further questions.

CROSS-EXAMINATION

BY MR. STRAWBRIDGE:

Q Good morning, Mr. Shumer.

A Good morning.

Q My name is Patrick Strawbridge. I'm counsel for Defendants in this matter.

THE COURT: I'm so sorry. Plaintiffs' counsel stood up.

MR. BRADSHAW: I was just noting that the clock was still running. We're keeping track of the time. My apologies.

THE COURT: No problem. All right. I appreciate that. You can proceed.

BY MR. STRAWBRIDGE:

Q Before I start my examination, I wanted to follow up on the last point that was made about patients coming from other states to Michigan to your clinic.

Is that what you said?

A Yes.

Q Were any of those patients from Georgia?

A I have not seen a patient from Georgia.

Q What states were those patients coming from?

A I have seen patients from Florida and Indiana.

Q Okay. And were they seeking -- what treatment were those patients seeking?

A Patients from -- two patients from Florida were seeking -- well, all patients were being evaluated for the diagnosis of gender dysphoria, and the patients that I have seen from Florida were -- are receiving testosterone and the patient from Indiana is receiving GnRH agonist.

Q They were already receiving those?

A One patient was -- from Florida was receiving testosterone and is continuing it. One was not and now is. One patient from Indiana was not on any treatment and will be starting treatment but hadn't started yet.

Q And how old were those patients?

A I think the three patients that I'm talking about right now, the patient from Indiana was -- is 11, and I don't remember the ages of the patients from Florida, but middle adolescents, I believe 16 or 17.

Q 16 or 17.

I want to start my cross-examination here by talking a little bit about your compensation in these cases.

A Okay.

Q You are being paid for your testimony in this case; is that right?

A Yes.

Q At $350 an hour?

A Yes.

Q When were you first retained to provide testimony in this case?

A I believe it was in June.

Q In June. And do you know how much time you have spent on this case so far?

A I don't. I would estimate somewhere between 12 to 16 hours.

Q Okay. Is that inclusive of both your preparation for your report and your testimony preparation?

A Yes.

Q This is not the only case in which you have provided expert testimony on behalf of Plaintiffs here; is that

correct?
A Yes.
Q You served as an expert witness in two similar cases in Florida?
A Yes.
Q Were you being paid the same rate in those cases, $350 an hour?
A I believe so.
Q And do you remember approximately how much time you spent as an expert witness in those cases?
A Probably in the neighborhood of 20 hours.
Q Total or each?
A Maybe we need to go back and identify what cases we are talking about.
Q Sure. One is Doe v. Ladapo, I believe.
Are you familiar with that case?
A Yes.
So that the majority of the hours I believe in -- from both cases were in the Dekker case, where I would estimate maybe 20 hours.
In the Ladapo, eight or ten.
Q You also served as an expert in the case now in Alabama; is that correct?
A Yes.
Q Boe v. Marshall?

A Yes.
Q Were you paid the same for your work in that case?
A I believe so.
Q Approximately how much time did you spend on that case?
A That case is ongoing and a lot of the case hasn't happened yet so less time, I think. Maybe in the range of ten hours.
Q And I didn't think I saw this in the declaration you filed with the Court, but you actually appeared as an expert witness in a similar case in Kentucky, didn't you?
A I haven't appeared. I think I have only submitted an expert report.
Q You think you did submit an expert report in that case?
A Yes.
Q Are you being paid the same rate, 350 in that case?
A I believe so.
Q How much time have you spent on that case?
A I would assume five hours.
Q Five hours. I think you served as a witness in a case in Arizona; is that correct?
A Yes.
Q Again, at $350 an hour?
A I think over time may be it's been less, in some cases but I couldn't really give you an accurate answer to that unless I looked back, but 300 or 350 would be my estimate.

Q Okay. And how much time did you spend on the Arizona case?
A I would estimate 12 hours.
Q Okay. Outside of your work as an expert witness, I believe you testified you have your own clinical practice in Michigan; correct?
A Correct.
Q That's the C.S. Mott Children's Hospital in Ann Arbor?
A Correct.
Q You treat children with gender dysphoria at that clinic?
A Yes.
Q You have done so since 2015?
A Yes.
Q And you were recruited to start that clinic as you were coming off your Masters at Harvard?
A Yes.
Q Did you treat gender dysphoria in children before your time at Harvard?
A So I was in Boston receiving my fellowship as a pediatric endocrinologist, so I did but under supervision from my mentors.
Q But before you arrived in Boston for that fellowship, you were doing work there.
Did you treat children with gender dysphoria?
A No.

Q Your clinic in Michigan, I believe your report indicated that you had treated more than 600 children with gender dysphoria at that clinic?
A Yes.
Q Does that constitute the bulk of the clinical work that you do?
A About 40 percent.
Q What's the other 60 percent?
A So I see -- I think it may be easier to explain that in a week I do half a day of diabetes clinic, so I will see patients with diabetes. And then for a half a day of general endocrinology and then two half days of pediatrics gender clinic and then another half day of video clinic, which is sort of anyone can be in video clinic. So it's a mix of people with gender dysphoria other endocrine problems and Type 1 diabetes.
Q Can you tell me approximately what your annual income through the University of Michigan is?
A My annual income?
Q Yes.
A $185,000 per year.
Q Is that -- are you paid that -- is any of that income divided amongst your various responsibilities?
A Not in the way that we've been talking. So I have clinical efforts, which is a certain percentage of my salary.

Then I have efforts related to teaching, but the clinical effort isn't then set up into pockets of gender and diabetes and endocrine. It's all combined.

Q What amount of your salary is allocated to your clinical effort?

A I think about 55 percent.

Q I wanted to clarify something. I may not have heard you correctly on direct examination but you do not actually diagnose gender dysphoria, do you?

A Yes, I do.

Q Is that new for you?

A I'm sorry, no.

Q Do you remember being deposed in an action in Indiana? I'm sorry. Yeah, in Indiana?

A Yes.

Q You were under oath at that deposition?

A Yes.

Q Do you remember testifying that you don't give a diagnosis of gender dysphoria as a pediatric endocrinologist?

A That may be the case. I can explain the difference in maybe how I'm thinking about the question in both scenarios.

In our clinic, the diagnosis of gender dysphoria is made by a mental health provider, which is a social worker, in our clinic. So I have never seen a patient that hasn't already been diagnosed with gender dysphoria. The diagnostic criteria

for gender dysphoria is available to any medical provider to use, so I do reaffirm diagnosis of gender dysphoria. I can make that diagnosis, but I don't independently make that diagnosis in a clinical practice.

Q In fact, every child that you see in your clinical practice has already been diagnosed with gender dysphoria; correct?

A Well, a patient may see me that doesn't have a diagnosis of gender dysphoria but that would then have also been determined by the medical health provider on our team.

Q Because gender dysphoria is classified as a mental health disorder?

A Gender dysphoria is classified as a mental health disorder in the DSM-5.

Q And you are not a psychiatrist?

A I am not.

Q Of the 600 -- I'm sorry. You testified that you have personally treated 400 children at the clinic with gender dysphoria?

A Yes.

Q That's an approximate number, I'm sure?

A Yes.

Q And I believe your declaration indicated the clinic that you started at have treated 600 children with gender dysphoria approximately?

A Yes.
Q Of the 600 children that your clinic has treated in the past seven years, do you know how many of them were prescribed puberty blockers?
A I would say about 20 percent.
Q 20 percent. And how many of them were prescribed cross-sex hormones?
A I would say about 70 percent.
Q 70 percent. Is there a rule of how many visits are required to your clinic before a child may be prescribed puberty blockers?
A No, I do not.
Q Are there -- is there a rule on how many visits are required before a child may be prescribed cross-sex hormones?
A No, there is not.
Q In your seven years at the clinic, have you ever prescribed puberty blockers upon a child's initial visit to the clinic?
A No. Their initial visit would have been with a mental health provider, but I have provided puberty blockers to a person that meets with me, yes.
Q Do you know how often you have done that?
A No.
Q In your seven years at the clinic, have you ever prescribed cross-sex hormones to a child upon the first visit

with you?
A Yes.
Q And how often do you do that?
A Sometimes. Less often than with puberty blockers but there are certain situations where a patient may be prescribed hormones after that assessment has been done.
Q In children who have been prescribed puberty blockers at your clinic during your time there, what's the youngest child that has been prescribed puberty blockers for gender dysphoria?
A Well, someone who has precocious puberty, natal assigned female at birth or not assigned male at birth, you know, if I were to prescribe GnRH agonist to someone under both ages, it would not be for gender dysphoria. It would be puberal suppression. So I think that the answer must be eight for someone assigned female at birth.
Q What is the youngest child you have ever prescribed cross-sex hormone treatment for gender dysphoria?
A I believe 12.
Q What is this oldest child you have prescribed hormones for gender dysphoria?
A I think the answer is 16.
Q How many of the 600 children in your clinic approximately have had their gender dysphoria resolved without prescription of cross-sex hormones?

A Very few.
Q You said you prescribed cross-sex hormones to 70 percent of the children in your clinic. Is that what you said?
A Yes. So I would say that -- so I'm trying to understand your question. So about 70 percent of patients that meet the criteria for gender dysphoria that are in the age group that we are talking about hormones. So patients in that first 20 percent that were treated with puberal suppression, if we include those into the hormone question, then, I would say the answer is about 90 percent.
Q Okay. So just so I understand, 20 percent puberty blocker and they are not at the age where you prescribed cross-sex hormones?
A Correct.
Q So is it about 10 percent that have gender dysphoria without cross-sex hormones?
A No. I would say that some patients that have gender dysphoria in the process of discussing the risks and benefits, the patient and families makes the decision not to treat with hormonal interventions, and then so that would be the bulk of the patients that are diagnosed with gender dysphoria that are not treated with hormones.

Other patients may have gender dysphoria but the source of their distress is not the development or lack of development characteristics, and so it wouldn't be -- the

treatment for gender dysphoria wouldn't entail the intervention.

Q You have some patients who did have gender dysphoria resolved before receiving the cross-sex hormone treatments?

A Yes.

Q Does your clinic require that patients be on puberty blockers for any particular amount of time before cross-sex hormones can be administered?

A No.

Q Of the 600 patients approximately that your clinic has seen in the last seven years, how many of them were natal female or assigned female at birth?

A Probably 65 percent.

Q 65 percent. Does that means that the other 35 percent were natal males?

A Yes.

Q You are, I assume, aware of the side effects literature indicating that the majority of current referrals for natal females are now identifying as male?

A Yes.

Q And you are aware, I assume, that WPATH reports for gender clinics that 81 birth patients initiating care 2 and a half to 7 times more frequently than those who were male at birth?

A I'm aware that the patterns of referral are more close to

50/50 in younger kids, right. So a preteen girl that I see tend to come in more of a 50/50 ratio. In adolescents, there seems to be a higher rate of gender dysphoria in female at birth and people who present to care seems to present 50/50. So over the course of one's life and age, there is some demographic differences in frequency of the referral.

Q Is that because -- let me just ask that. Is that difference especially with respect to the older population, is that because of the change in historical trends as in the historical trend used to be that people seen for the treatment of gender dysphoria were largely male and so that's the older population and the younger population is female? Are you suggesting that people adopt new gender identities in adulthood at a 50/50 rate?

A Well, I don't know. I think it's really a interesting question that we are talking about. So, you know, I think in adolescents, oftentimes people with gender dysphoria present to care because of the development of secondary sex characteristics. And in people assigned female at birth, menstrual period is oftentimes a really heralding sign of puberty, but the same sort or boom in puberty that doesn't occur in assigned male at birth.

So one of my thoughts is that just the process (unintelligible)prompt people to come in to care. I think that it's much more challenging for people that are assigned

male at birth to come out of the closet or to talk about gender identity. And if so, I think that some people that have male sex assigned at birth and female generated may not present to care until later. So I think that it is an interesting, you know, thought experiment to think about, those demographic differences, yes.

Q There is nothing new about girls born female having a menstrual period when they enter adolescence, though; correct?

A Correct.

Q And you do agree that there is a historical trend, since the last decade where the gender dysphoria was overwhelming diagnosed in natal males and not natal females?

A I think you know data like from the 70's and 80's, yes, I think that is true.

Q What about from the 90's? What does the data say about that?

A I don't have data to report back to you, but I think that over time, the current pattern you described, the adolescents age group, there is the higher rate of gender dysphoria in people assigned natal female at birth has come about over time, so when that started, I'm not exactly sure.

Q Dr. Shumer, you agree that the administration of cross-sex hormones does carry risks and side effects for patients?

A I did say that, yes.

Q And the administration of cross-sex hormones to adolescence in particular can have some irreversible changes?
A Yes.
Q Such as effects on fertility I think you testified about?
A Can you say that again.
Q Such as effects on fertility?
A Yeah. I answered a question related to the potential of fertility.
Q Right. And I assume you advise patients going on cross-sex hormone treatment that their fertility could be impaired?
A We always talk about what is known about fertility and also how that relates to each individual patient.
Q But am I correct that you do warn them there is a possibility their fertility will be permanently impaired, if they complete cross-sex hormone treatment?
A I don't know if I have used the word that you just used that I would say that maybe permanently impaired. I discuss the topic in lot more nuance than that and use examples of, you know, fertility options in terms of the gamut of preservation prior to starting hormones. And that, yes, for some people that are on hormone therapy, it may diminish your fertility or make it not possible.
Q Is the potential loss of the ability to breastfeed a potential side effect of cross-sex hormone treatment?

A It's not something that I've discussed with patients before, no.
Q You don't think that administration of cross-sex hormone treatment for several years might impair the ability of a natal female to breastfeed?
A To be honest, I don't know if there's data to support that or not. That's not something that I readily discuss with patients.
Q Another side effect of this is the permanent development of breasts for natal males with estrogen?
A Yes.
Q Permanent voice deepening in natal females. I think you mentioned that.
A Yes. And, of course, a lot of these are the goals of the treatment, which is also discussed as a potential benefit.
Q Hair loss in natal females?
A Yes, as I discussed in direct.
Q And hair growth, too; correct?
A For trans boys on testosterone to develop body hair?
Q Yes.
A Certainly less often described as a side effect. More often described as something that the patient is excited about.
Q Venous thromboembolism in natal males is a risk factor with the administration of estrogen?

A Similarly to anyone taking estrogen. Estrogen is a thermogenetic hormone. So anyone taking estrogen for any reason would have a higher risk for venous thromboembolism that had they not taken estrogen.

Q Do you advise your patients that are going through the process of hormone treatment that this will be a treatment that they will have to undertake for a long period of time?

A No. Because every medical decision made is something that we constantly re-evaluate. So if a patient starts hormone intervention and reports that hormone intervention is no longer a goal for them, we then discontinue it.

Q Wouldn't their gender dysphoria require them to undertake a long process of cross-hormone treatment, if they wanted to continue the secondary sex characteristics into adulthood?

A That would be the most common scenario, but that -- taking a very individualized approach, those goals would be re-evaluated at every encounter.

Q Is it your experience that patients in your care ever stop cross-sex hormones after starting them?

A In some cases that has happened. Oftentimes, the scenario that happens is that a patient will, you know -- for example, be taking testosterone and have achieved voice deepening and facial and body hair changes and are weighing the pros and the cons of continuing to take the medication for the rest of their lives and -- versus, you know, losing some

of the non-permanent effects of the medication by withdrawing and make the decision to stop the hormones in sort of talking through the risks and benefits with me and that decision with their treatment gender dysphoria.

Q In your experience, do patients with gender dysphoria sometimes decide -- elect not to proceed with various stages of treatment, such as cross-sex hormone treatment?

A Sure. I think of hormone interventions, blockers interventions, as sort of tools in a tool kit to treat gender dysphoria that may not be appropriate for each individual patient based on the source of their distress.

Q Do some of your patients elect to go on to surgical transition procedures?

A Some do.

Q Do some elect not to?

A Yes.

Q Of the 600 patients that come through your clinic, have most of them ultimately transitioned to an adult care plan?

A Yes.

Q Ones that have not yet reached the age of 18 or 20 or whenever it is you stop treating them?

A Yes.

Q Of those patients, are you formally in contact with all of them?

A No.

Q Are you -- are any of them being monitored or otherwise participating in a clinical study at your facility?
A The patients that are in the pediatric gender clinic are involved in a clinical study. Patients that are no longer part of our clinic are not followed in any particular set study that I'm aware.
Q So there is no effort to check in with your patients five years after treatment stopped, for example, to see how they are doing?
A That is not something that I endeavor to do, but I am in touch with many of my ex patients just because they play such an important part of, you know, my career and their lives have been impacted by the gender clinic to the point that they want to stay in touch, but not enough that you are suggesting, no.
Q That's like you may see them at the grocery store, that sort of thing?
A Yes.
Q Not a formal follow up?
A Correct. As is the case with any other pediatric endocrinology patients that I treat. I don't have a formal followed-up plan for those patients either.
Q Dr. Shumer, I believe you testified you do not consider the use of hormones in adolescents for treatment of gender dysphoria to be experimental.
A Right.

Q You think there is robust evidence of safety in efficacy of hormone treatment of people with gender dysphoria?
A I agree.
Q And you think that withholding such intervention would be negligent?
A Yes.
Q You would agree, doctor, that reasonable people in your field can read the evidence and come to different conclusions?
A I think that the evidence in my view seems quite clear that the treatment of gender dysphoria is safe. I don't think people that disagree with that are necessarily doing it out of, you know, ill intent, but I would disagree with them.
Q Disagree. You think it's unreasonable?
A I think they are wrong. I don't know if that would be unreasonable or not.
Q You are familiar with the Swedish Review of Evidence published in ACTA Pediatrica in April of this year?
A Can you say that again?
Q The Swedish Review of Evidence published in ACTA Pediatrica?
A Yes.
Q You are familiar with that document?
If you want to, I can refer you to it. It's in one of the binders in front of you. One of the Defendants' exhibits. But --

A Sure.
Q Since you are familiar with it.
A What number is it?
Q Tab 5 of Defendants' Exhibit 4.
A Gotcha.
Q Would you agree with me, and I'm looking at the abstract here, that the purpose of this review was to assess the effects of psychosocial and mental health, cognition, body composition and metabolic markers of hormone treatment in children with gender dysphoria?
A Yes.
Q This systemic review began with the search encompassing nearly 10,000 studies; is that correct?
A I guess.
Q You can look at 3.1.
A Okay. Yes.
Q And it identified 24 studies that the authors determined were relevant?
A Yes.
Q And of those 24 studies, 16 involved the assessment of treatments that include cross-sex hormones; is that correct?
3.2 if you need to refer to that.
A Yes.
Q And the authors reported -- this is under Results -- it's Under Abstract, Results of the Abstract on Page 1 -- based on

their survey no Randomized Controlled Trials were identified. The few longitudinal observational studies were hampered by small numbers and high-attrition rates. Hence, the long-term effects of hormone therapy on psychosocial health could not be evaluated. Correct?

A Yes, that's what's written.

Q It also concluded four months ago that evidence to assess the effects of hormone treatment on the above fields in children with gender dysphoria is insufficient. Correct?

A That's the conclusion that they came to.

Q You don't have any evidence that these authors are motivated by anti-tran bias, do you?

A No. I think they're looking at a lot of the same -- they are looking at studies relating to gender dysphoria in order to come up with this systematic review, which is a little bit different than clinical practice guidelines in order to provide patient care. So that patient care clinical practice guideline is instructing based on best evidence what would -- what is the suggested recommended course of action.

This systematic review reviews a lot of studies that I'm familiar with and some of the things that you mentioned, I would just like to sort of circle back on for a second. The randomized controlled trial, this is the highest, sort of level of evidence that you can have in science because you are isolating a discrete variable.

So, for example, if you are trying to say is penicillin A or B penicillin better, you can give people more of one or the other and make them unaware which one they are taking and leave every other variable the same. The differences between outcomes you can attribute only to the difference in the outcome.

So there are no randomized controlled trials to review in the treatment of gender dysphoria. And that makes a lot of sense, right? Because the treatment of gender dysphoria in children and adolescents is a complex longitudinal process throughout many years and is something that can be actively studied.

So instead we use other ways to assess these interventions. We use retrospective studies. We use longitudinal studies. We use case-controlled studies. And for the use of GnRH agonist hormones, those are the types of studies that we do have, and each of those studies is different but they in some way are trying to isolate the intervention and the variable or mental health or safety and in -- as a physician seeing a patient in front me, say with gender dysphoria, I say, okay, how would we use the variable literature to help make a decision about your care, about your treatment options for gender dysphoria.

When I reviewed the literature outlining GnRN agonist testosterone, estrogen, and it talked about those options with

the patients, I feel not only comfortable but feel strongly that those interventions may, in fact, be helpful for that patient because of data I have read and reviewed and which has been reviewed by WPATH and the Endocrine Society. Those organizations in reviewing all that they have, could come up with one or two recommendations that could come up with a recommendation to treat with these medications or against treatment and their recommendation is to treat. I think that what the systematic review highlights is that just like many areas of medicines, more data will be helpful to continue to understand how these different medical interventions impact gender dysphoria.

Q I appreciate the answer, Dr. Shumer.

My question is do you have evidence that any of these people who offered this paper were motivated by anti-tran thoughts?

A No.

Q You are familiar with the 2019 analysis by Kaltiala on cross-sex hormone in its transgender youth. It's in Tab 4 of that same binder, if you would like to refer to it.

A I'm with you. Yes, I'm familiar.

Q This was a chart review of 53 patients in Finland who were offered cross-sex hormone treatment; is that correct?

A Yes.

Q If you'll look at the material to refresh your

recollection.
A Yes.
Q And if we look at Conclusions, which is the second to last page of the binder, the authors concluded that quote, Among adolescents diagnosed with transsexualism, difficulties in adolescent development and functioning in life domains appropriate to late adolescence do not disappear with cross-sex hormone treatment.
Is that what it says?
A I believe so. I am not following exactly where you are, but if you would like me to --
Q The Conclusions section.
A Gotcha. Okay. Yes.
Q Finland also released recent advisory on the treatment of transgender youth; is that correct?
A That's my understanding.
Q If you turn to Tab 3 in this binder, it might refresh your recollection as to the document.
Are you familiar with that?
A Yes.
Q And if you turn to the Conclusions which is the third to last page, this recommendation instructed in adolescents, psychiatric disorders and developmental difficulties may predispose a young person to the onset of gender dysphoria.
Is that right?

A That's what it says, yes.
Q And clinical experience reveals that autistic spectrum disorders are overrepresented among adolescents suffering from gender dysphoria?
A Yes.
Q It goes on to say that in light of available evidence, gender reassignment of minors is an experimental practice.
Correct?
A It does say that, yes.
Q And that information about the potential harms of hormone therapies is accumulated slowly and is not systematically reported.
Does it say that?
A It says that.
Q You don't have any evidence that the conclusions here were motivated by anti-tran bias, do you?
A I don't. I also just point out that this is a government document as opposed to clinical practice guidelines, and I am not aware that there is a banning of gender care for minors in Finland.
Q Was this government recommendation formed by a review of the medical literature?
A As outlined by this document that we're reading together, yes.
Q Now, I'd like to discuss the Evidence Review Commission

by England's National Health Service on gender-reforming hormones for children and adolescents with gender dysphoria. It's behind Tab 1 of this binder for your reference.

You are familiar with this document, are you not, doctor?

A Yes.

Q This was prepared in October of 2020; is that correct?

A Yes.

Q And if you look at the introduction, the purpose of this review was to assess the evidence for the clinical effectiveness, safety, and cost-effectiveness of gender-affirming hormones for children and adolescents age 18 years or under with gender dysphoria.

Correct?

A Yes.

Q And this review found -- I'll turn to Conclusions which is on Page 50 of this document. Do see the Conclusions, Paragraph 7?

It found limited evidence for the effectiveness and safety of gender-affirming hormones in children and adolescents with gender dysphoria, with all studies being uncontrolled, observational studies, and all outcomes of very low certainty.

That was their conclusion; correct?

A That's their conclusion.

Q Any potential benefits of treatment must be weighed

against the largely unknown long-term safety profile of these treatments.

Correct?

A That's what they wrote, yes.

Q And you disagree with that conclusion; right, Dr. Shumer?

A I do.

Q You don't think that Dr. Cass is reaching an unreasonable conclusion here, do you?

A I think that she's reaching a conclusion that -- I disagree with the fact that she is saying that the fact that -- that the outcomes have very low certainty but I agree that there is not Randomized Controlled Trials available and I disagree with the premise we don't have safety data to suggest, understand the potential risks of these medications. I am also aware that, again in England, there is not a ban of these medications in people under 18 as a result of this document.

Q I understand you disagree, but my question is a little bit different. I'm asking you whether or not you think it's an unreasonable conclusion?

A Again, I would say that it's a wrong conclusion but I don't know if I would define the term unreasonable. I don't think it's a conclusion driven by mal intent but I think it's incorrect.

Q You are aware that this report that we are reviewing was

prepared as part of a larger review of the England National Health Services approach for gender dysphoria treatment?

A Yes.

Q That review was by Dr. Cass, the former president of the World College of Pediatric and Child Health?

A That's my understanding.

Q You will find this behind Tab 2 of your binder.

Dr. Cass issued an internal report in February of 2022; is that right?

A Yes.

Q And I'll refer you to the Summary on Page 18 of this document, 1.23.

This report concluded that evidence on the appropriate management of children and young people with gender incongruence and dysphoria is inconclusive both nationally and internationally.

Correct?

A That's what written, yes.

Q And internationally as well as nationally, longer term follow-up data on children and young people who have been seen by gender identity services is limited, including for those who have received physical interventions; who were transferred to adult services and/or accessed of private services; or who desisted, experienced regret or de-transitioned.

That was the Summary conclusion?

A Yes.
Q And that there has been research on short-term mental health outcomes and physical side effects of puberty blockers for this cohort, but very limited research on sexual, cognitive or broader developmental outcomes.
Correct?
A Which paragraph are you reading, so I can read along?
Q 1.27.
A Yes, it looks like you read that one correctly.
Q And then the next paragraph on .28. This report concluded that much of the existing literature about natural history and treatment outcomes for gender dysphoria in childhood is based on the case-mix of predominantly or birth-registered males presenting in early childhood. There is much less data on the more recent case-mix of predominantly birth-registered females presenting in early teens, particularly in relation to treatment and outcomes.
Correct?
A Yes.
Q That's Dr. Cass' conclusion in this internal report from 2022?
A That's the conclusion, yes.
MR. STRAWBRIDGE: I have no further questions for you.
THE COURT: I imagine you have some redirect

counsel; is that correct?

MR. MCINTYRE: Yes.

THE COURT: We are going to take a mid-morning break before we get to redirect. I'm going to keep us on schedule, but I want to give our court reporter a break. So we are going to take ten minutes, and we're adjourned for ten minutes.

(Whereupon, a break was taken.)

THE COURT: Redirect.

REDIRECT EXAMINATION

BY MR. MCINTYRE:

Q Dr. Shumer, does one have to be a psychiatrist or psychologist to diagnose gender dysphoria in the DSM-5?

A No.

Q Does one have to be a mental health professional to diagnosis psychological disorders using the diagnostic criteria set forth in the DSM-5?

A No. Other medical providers use the DSM-5 all the time to make diagnoses such as primary care doctors diagnosing depression, anxiety.

Q So can a medical doctor, then diagnosis psychological disorders using the diagnostic criteria in the DSM-5?

A Yes.

Q How many times have you personally evaluated patients against diagnostic criteria with gender dysphoria set forth in

the DSM-5?

A I'd say the majority of the patients that I am seeing because they have been previously diagnosed with gender dysphoria but in all of the patients, I get the criteria and compare that to the criteria in the DSM. So all of the patients that I see, which would in the several hundreds.

Q Doctor, with children who have gender dysphoria that persist in adolescents, can you speak to how likely they are to continue to identify as transgender until adulthood?

A Yes. As a young child, the experience of gender identity as emerging may or may not be very predictive of adult adolescent or adult gender identity. But as puberty starts, we see that gender identity become more consolidated. Gender dysphoria often intensifies. So as puberty starts, if those things happen, then that does highly predict to continue through adolescence and adulthood.

Q What is the basis for this testimony that you just gave?

A Again, there's literature outlining this natural course of gender identity and also my clinical experience.

Q I believe you mentioned earlier this morning that hormone therapy can be used to treat conditions other than gender dysphoria.

Do I have that right?

A Yes.

Q When hormone therapy is prescribed to treat other

conditions besides gender dysphoria, are there potential sides effects?

A Yes.

Q What are those side effects?

A Similar to the side effects that we discussed with testosterone and when we're prescribing testosterone, of course, the goal is to achieve a normal to mid-level testosterone. And with that comes an inherited risks of being a man, as we -- our discussion with gender dysphoria, you know, baldness is the example that I like to use, but men and women have different risks for all sorts of different things that may be related to excessively-high testosterone. The example that I often use is high red blood cell counts, higher blood pressure, higher blood sugar. Those things you would be concerned about, if someone is on high-excessively testosterone.

For example, you know, an athlete that is abusing testosterone may hit a lot of home runs. Might not get into the hall of fame but also they would have a higher risk for high blood pressure and diabetes.

Q How can you ensure that the patient does not have excessive levels of testosterone or estrogen?

A The primary way is measurement. So you measure over time. But also in terms of a clinical exam, there is science that testosterone dose or estrogen dose could be excessive.

Q And those are sorts of examples conducted for adolescent patients who have gender dysphoria?
A Yes. Any patient who I prescribe testosterone or estrogen for, I need to monitor to make sure that the dosing is correct. That the medication is serving the purpose of what it's treating and also that the dose doesn't need to be adjusted for a particular reason.
Q Do pediatric endocrinologists prescribe hormone therapy to treat conditions other than gender dysphoria, specifically in adolescents?
A Yes.
Q And when you prescribe hormones to treat those patients, do you conduct the same sort of monitoring just described?
A Yes.
Q You testified earlier that certain medical associations in the United States for gender dysphoria destroy that?
A Yes.
Q Do you recall which organizations you mentioned?
A I think I mentioned the American Academy of Pediatrics and the American Psychiatric Association.
Q Do you hear about any other medical associations in the United States that support gender-affirming efforts?
A Yes. There are affirmative statements in support of this care by the American Medical Association, the American College of Obstetrics and Gynecology. There are others that I forget.

Q And when you say gender affirming, does that include hormone therapy?
A Yes.
Q In cross-examination, counsel for the Defendants talked a bit about systematic reviews.
Are systematic reviews intended to serve as clinical guidelines?
A No.
Q Why not?
A Systematic review is simply reviewing a body of literature and then organizing the results.
Clinical guideline is intended to take the literature and then make treatment recommendations for clinicians reviewing that guidance.
Q Defense counsel also talked a bit about Randomized Controlled Trials. Can you elaborate or can you help us understand whether it would be possible to conduct a Randomized Controlled Trial to evaluate the efficacy of hormone treatment in the treatment of gender dysphoria.
A Yes. Randomized Controlled Trials have a lot of advantages. For complex systems of the treatment, they won't work. So for gender dysphoria treatments specifically, if I was to envision conducting a Randomized Controlled Trial of the process of being treated with puberal suppression followed by hormones, what that would look like would be recruiting

people at early puberty that have gender dysphoria and then randomly assigning them to treatment with GnRH agonist or no treatment and following them over the course of time and those same people that received the GnRH agonist then would receive hormones and the other people would continue to receive no treatment, and then the outcome presenting would be their quality of life as adults. So we're envisioning setting the study up, we would have to -- we would realize that number one, the patient would obviously know what they were assigned to, so it wouldn't be a blind study.

Second, I don't think patients would sign up for this study so that patients would come into gender clinics to talk to doctors about treatment options and make their own decision at the end of that conversation about what makes the most sense to them and their child.

That random assignment leads to one or the other groups wouldn't be tolerated because most families wouldn't believe, most families wouldn't think that getting assignment to either group has a relatively equal likelihood of a good outcome. And also providers in the field wouldn't believe because of the current evidence that exist. I would have a hard time writing the assignment for mental treatment that I would think would benefit.

Finally, if we are thinking about a study, we would say what is the outcome, right? So if the outcome is improved

mental health and quality of life over the course of one's life, which I think is the purpose of using the treatment options that we have been talking about, then, we would set up some way to measure that 10, 20 years later and continue to have some people receiving no treatment. And that, obviously, wouldn't be possible.

So, unfortunately, for gender dysphoria treatment also similar complex medical treatment issues that exist all over medicine, Randomized Controlled Trials are impossible, so we have to turn to other alternatives of study.

Q You mentioned that the sample patients would not know which group they were assigned to.

Can you clarify why that's the case.

A Well, if you are conducting a Randomized Controlled Trial where a group of patients is either put in a treatment group and a non-treatment group but the treatment we're talking about is first stopping puberty or inducing puberal changes, patients will readily know which group they are in by what happens to their body.

Q Doctor, has Sweden completely prohibited the use of hormone treatment?

Has Sweden -- has the government completely prohibited the use of hormone therapy for the treatment of gender dysphoria throughout the age of 18?

A No, they haven't.

Q What about Finland?

Has Finland completely prohibited the use of hormone treatment for the treatment of gender dysphoria for the age of the 18?

A No.

Q What about England?

Has England completely prohibited the use of hormone therapy for the treatment of gender dysphoria through the age of 18?

A They have not.

Q Now a few minutes ago the defense counsel looked at Exhibit 3. Do you still have the binder of Defendants' exhibits in front of you?

A Yes.

Q Can you please turn to Exhibit 2. I'm sorry I misstated that, Exhibit 2.

A I'm there.

Q This is the Cass Report, is it not?

A Yes.

Q Can you please turn to Page 23 of this document.

A 24?

Q Page 23, yes.

Do you see on the left-hand column there is a box with the Number 10 in it?

A Yes.

Q Can you please read the text in that box for the record.
A Any child or young person being considered for hormone treatment should have a formal diagnosis and formulation, which addresses the full range of factors affecting their physical, mental developmental and psychological well being. This formulation should then inform what options for support and intervention might be helpful for that child or young person.
Q Do you agree with what's stated here?
A Yes.
Q Is what's stated in this Box 10 consistent with the WPATH Standards of Care and the Endocrine Society Clinical Guidelines?
A Yes.
Q Can you see in the right-hand column near the bottom there's a box with the Number 12 in it?
A Yes.
Q Can you read the text in that box into the record.
A Paediatric endocrinologists should become active partners in the decision-making process leading up to referral for hormone treatment by participating in the multidisciplinary team meeting where children being considered for hormone treatment are discussed.
Q Do you agree with what's written in Box 12?
A Yes.

Q Is this text, this recommendation in Box 12, consistent with the WPATH Standards of Care and the Endocrine Society Clinical Guidelines?

A Yes.

MR. MCINTYRE: No further questions at this time.

THE COURT: All right. Thank you very much, Dr. Shumer.

Are we finished with this witness?

MR. BRADSHAW: Yes, Your Honor.

MR. STRAWBRIDGE: Nothing else for Defendants.

THE COURT: Counsel, are you ready to call your next witness?

MR. BRADSHAW: Raise your right hand.

MEREDITH MCNAMARA,

a witness herein, having been first duly sworn, was examined and testified as follows:

COURTROOM DEPUTY: You may be seated.

Ma'am, I just want to remind you it's very important for everyone in court to hear your testimony this morning, as you may help yourself to the water, so please remember to speak directly into the microphone.

Can you please state and spell your first and last name for the record.

THE WITNESS: Yes. M-e-r-e-d-i-t-h M-c-N-a-m-a-r-a.

COURTROOM DEPUTY: Thank you.

DIRECT EXAMINATION

BY MS. WEAVER:

Q Good morning, Dr. McNamara.

What is your profession?

A I am a pediatrician and adolescent medicine specialist.

Q Could you summarize your formal education and training to become a doctor?

A Yes. I received my M.D. and Masters in Clinical Research from Emory University. I completed a Residency in Pediatrics at the University of Chicago and a Fellowship in Adolescent Medicine at the University of Illinois in Chicago.

Q Why are you here today?

A I am here to provide expert testimony regarding pediatric adolescent medicine and clinical research as it pertains to medical treatments for gender dysphoria for minors.

Q What is clinical research?

A Clinical research is a broad term to describe all scientific inquiry into the efficacy and safety of medical treatments and the various phenomenon that describe human disease.

Q And what are the goals of clinical research?

A To improve and perfect clinical practice. So identify knowledge gaps and to fill them and to make our therapies as effective as possible for our patients.

Q Can you talk about the different types of clinical

research that there are?
A So two broad categories of studies designs. One we've talked about a lot today, Randomized Controlled Trials and the other category would be observational study.
Q What's the main difference between the two different types of designs?
A So Randomized Controlled Trials as we've discussed, involve two study groups. One in which subjects are randomized to receive no treatment and one in which subjects are randomized to receive treatment. The idea is that everything else about them is the same and so their outcomes are followed over time. The idea in Randomized Controlled Trials is that they can identify as close as possible the independent effects of an intervention on an outcome.
Observational studies are different. So they encompass another kind of like wide variety of study designs but the idea is that subjects are observed naturalistically in settings that they would be in no matter what, whether or not there was clinical research going on and their outcomes are studied as well. The factors that contribute to those outcomes are analyzed with a variety of statistical methods.
Q Now is there a study design of the two that's considered one to yield the best results?
A Randomized Controlled Trials are acknowledged to produce high-quality evidence.

Q Is there a hierarchy of evidence quality as you understand there to be?

A There is a hierarchy. I would say that there is not a strict hierarchy that applies to every single command of clinical care equally, but the idea is that Randomized Controlled Trials are superior to observational study and below that are other types of research, like case reports, things that are not nearly as robust.

Q What situation, if any, are there that Randomized Controlled Trials study would not be appropriate -- would not be the appropriate design to use?

A There are many situations. So, first of all, if the disease state or other medical condition is quite rare, it would be really hard to recruit enough participants to achieve statistical power. You have to have enough participants in order to even notice a difference. If you have a hundred versus a hundred thousand, that contributes to the strength of the study and robustness of your findings. However, when it comes to rare conditions, that's sometimes prohibitively difficult to obtain.

If a condition is rare and treatment is highly sought after, if the condition is quite serious and timely interventions are needed, then a Randomized Controlled Trial would actually be considered unethical because it could be coercive. People might sign up for the study in the hopes

that they could obtain the treatment. But then what -- the problem with that is that research studies are never supposed to coerce their participants into engaging into that study. That's a pretty profound ethical violation.

And then, finally, if participants could easily become aware of the treatment that they were assigned to then the Randomized Controlled Trial design would simply be logically inappropriate.

For all of those reasons, institutional review constitute protocols and they decide whether or not the study design is appropriate or ethical.

Q Now what ethical concerns, if any, are there to use a Randomized Controlled Trial to study the relationship between the use of transitional medications for adolescents and patient outcomes?

A They're all the ones I just mentioned. So it would be highly unethical and impractical to conduct. Randomized Controlled Trials uses a lot of resources. It would be really hard to recruit participants. The participants that potentially did sign up might feel coerced or motivated to participate on the off chance that they could get a treatment. And, notably, you know, after a few months of participation, participants would know whether or not they were receiving active treatment. And once you know the inherent strength of the Randomized Controlled Trial, which is blinding, it's gone.

Q How do doctors use clinical research to inform their practice of medicine?
A We use clinical research. So we use research that informs guidelines. We look at best available evidence. We look at newly-published evidence. And that is all incredibly helpful in caring for the patient in front of us. But there is -- there is a really important individualized approach that we take with the patients sitting in front of us. So I would say it's a very significant part, and there are other factors, too.
Q And would clinicians treat patients based on research that do not use Randomized Controlled Trial studies?
A Yes, absolutely. About 85 percent of evidence that guides clinical care is not based on Randomized Controlled Trials at all. And I'm speaking across the board about all of medicine.
Q Defendants' experts have submitted declarations in this case. Have you reviewed their declarations?
A Yes.
Q And Dr. Cantor and Laidlaw referred to systematic reviews in their declaration.
What is a system review of literature?
A A systematic review kind of tells you what it is. It's a systematic approach to searching databases of clinical research and using specific terms to answer a research

question. A large number of studies are gathered. The number of studies that the investigator analyze and kind of collate results amongst is windled down using exclusion criteria and the results of the systematic review are essentially a function of the backgrounds of the authors who have conducted them, the search terms that they've used, the exclusion criteria they have applied to not analyze certain studies and the conclusions that they draw.

Q And Defendants cite to a systematic review published in the Littman Study. Are you aware of this systematic review?

A Yes, I have reviewed.

Q What is your assessment of that systematic review?

A So that single review, as best I can tell, it was performed by people with epidemiologic and biostatistic backgrounds. I did try to see if those authors had any experience, clinical experience, in treating gender dysphoria or produced research in the field, any subject matter expertise specifically. I couldn't detect any.

But, moreover, I have a couple of takeaways. So I felt that that review tried to answer a lot of different questions. And we have word counts with journal articles. So, you know, it's answering questions about psychosocial benefits, efficacy of treatments, safety. That's a lot of broad topics to cover within one systematic review. Some of them were robust ones and the more in-depth ones I have seen just handled one

research question.

I also felt that there search terms were a little bare. They didn't include, for instance, cross-sex hormones in order to search the literature. So that could have excluded important studies. Moreover, the study was published in the Spring of 2023, but the later bound of the date range that they searched for published studies within was in 2021, and more studies have come out since then that the review does not include. So, you know, systematic reviews are only able to reflect the time period that they search. And I would say that it does not reflect best available evidence.

Q What is your response, then, to allegations, the defense experts allegations, that this particular systematic review concluded does not have enough evidence showing benefits of hormone therapy for adolescent patients?

A I would say that those conclusions, kind of similar to what I said earlier, are a function more so of what I perceive to be the author's maybe inability to engage with the nuances of the observational studies that we have.

So systematic reviews that answer the exact same research question do produce very divergent results. They are subject to the same methodological biases and they can produce heterogeneous findings that can be a scientific debate, but looking at one or just a few is a very flawed way to assess all of the evidence about the literature.

I would also say that it's a little bit out of date. Like I said earlier and, you know, I've addressed systemic reviews that I feel are more methodologically sound, more able to engage with the nuance findings of observational studies.

Q What is the role of systematic reviews in creating clinical practice guidelines?

A Systematic reviews in general are commissioned by expert panels that produce clinical practice guidelines. So it is one of other things that these expert panels can use to produce their guidelines to inform their colleagues who provide clinical care on the ground.

Other things that these expert panels use include their expertise in considering the effects of not treating or not offering care. Their expertise on patients preferences and values. Resources that would be consumed by either not treating or treating, and then other real-world considerations. So it is one part of a larger machine and all of those parts are critical.

Q To your knowledge, what clinical studies, if any, are there that conclude transitional medications for gender dysphoria should be prohibited or not used?

A I have never read that conclusion in this study.

Q How about systematic reviews?

Have you read any systematic reviews that come to that same conclusion?

A No.
Q Now Dr. Cantor in his declaration report relies on what is a Pyramid of Evidence to say that systematic reviews are of the highest quality of evidence. Do you know what this Pyramid of Evidence is?
A Yes. I have seen the Pyramid of Evidence.
Q What is it?
A It is a pyramid with kind of a broad base and a narrower top and at the top of the pyramid are systematic reviews. Below that are Randomized Controlled Trials. Below that are observational studies. You know, the narrow base also -- the shape of the pyramid corresponds to the number of studies available in each of the tiers in the pyramid. And then below observational studies would be kind of like case reports and other types of studies that are considered to be less robust.
Q And how are clinicians to view this various types of evidence, if there is a gap between the results of, say, a systematic review and what is needed in clinical care for a patient?
A Well, you wouldn't use a systematic review to provide clinical care. A systematic review can inform the developers of the clinical practice guidelines. But in practice, physicians, clinicians of all disciplines rely on the guideline development processes that are quite sound and well respected and themselves built off of the guidelines. There

are guidelines for how you make guidelines. We don't use systematic reviews to guide clinical care.

Q I want to talk a little bit more about clinical practice guidelines. What guidelines or standards, if any, in the US are recognized within the medical and mental health field for treating transgender adolescents with gender dysphoria?

A So these are not specific to the United States. They are considered to be internationally used and respected, but the WPATH 8th Edition and the Endocrine Society Guidelines last issued in 2017.

Q What types of evidence or reviews are these guidelines based on?

A WPATH commissions systematic reviews that were performed by public health researchers and subject matter experts at Johns Hopkins. Those investigators at that School of Public Health used the Agency for Healthcare Research and Quality, the HRQ Guidelines, for performing systematic reviews, and the HRQs are part of the federal government and kind of like a large, impartial federal body that helps direct the analysis of clinical research, among other things.

Q Talk more about the Endocrine Society Guidelines.

What is the purpose of these guidelines?

A To support and inform and help endocrinologists throughout the world who care for transgender people to provide evidence-based care for their patients.

Q Are you aware of any studies out there showing that adherence to these guidelines fulfills this purpose?
A Yes. So just recently, a study was published by Gupta and colleagues from Emory which was a retrospective chart analysis of all the patients that have received care at their clinic over the preceding, I believe, it was ten years or so, but I'd have to look at it to refresh my follow-up period. But most importantly, what it showed is that all of the -- the vast majority of adolescents received care or continued care. Two discontinued care. One to pursue pregnancy options and one for another reason I can't remember. Most importantly what this really shows is that the vast majority of adolescents who receive care in accordance with the Endocrine Society's Clinical Practice Guidelines continue this care and none of the patients who paused treatment identified with their sex assigned at birth, meaning that they later determined that they weren't transgender. That was not observed.
Q And for these guidelines, what method was used to develop them?
A The Endocrine Society uses the GRADE approach to look at evidence and to make clinical practice recommendations for care.
Q And what does the GRADE methodology consist of?
A So under the GRADE model, Randomized Controlled Trials

are automatically considered high quality. Observational studies are automatically considered low quality and various aspects of those studies can be used to up or downgrade the quality of evidence.

The Endocrine Society used those guidelines for guideline development to issue strong or weak recommendations. And the strength of the recommendation depends on the quality of evidence and also on other factors that are incredibly pertinent to patient care. Some of the ones I have mentioned already.

Q Defendants' expert pointed out how the Endocrine Society Guidelines issued recommendations based on low-quality evidence.

What does it mean for clinicians treating patients with gender dysphoria with this low-quality evidence based recommendation?

A So the provision of gender-affirming care for transgender adolescents is based on low-quality evidence. That's a technical term that was assigned based on the study designs and determination of how the studies were conducted. That is not surprising or unusual at all.

As I mentioned before, 85 percent of clinical care is based -- is grounded on low-quality evidence. As a pediatrician and adolescent medicine physician, I look at low-quality evidence or very low-quality evidence all the time

to care for my patients and I'm very confident that I'm serving them with the best available care.

Just, you know, kind of some general examples, the use of hormonal treatments to treat heavy menstrual bleeding is direct from the low-quality evidence.

I recently prescribed a puberty blocker to a young female to preserve her fertility while she underwent chemotherapy. That was based on very low-quality evidence. Never -- no Randomized Controlled Trial was done there to my knowledge.

Other aspects of pediatric care, the treatment of croup with steroids can be lifesaving. I've definitely been there at the bedside when patients are crashing and they need those steroids. We give it to them and the quality of evidence is quite low. But the effects of the care are -- the benefits are tremendous.

Q And under the GRADE system, you talked about the strength of the recommendations.

What are the different types of strength of the recommendations?

A Yes. So we touched on this. There are strong and weak recommendations.

Q And would clinicians be able to rely on both strong and weak recommendations?

A Yes, absolutely.

Q And in the course of a doctor's practice, how would the

doctor change a patient's treatment path, based on whether a recommendation was strong or weak?

A I don't know that we would necessarily change the treatment path. We would certainly have a more in-depth discussion, more shared decision making. I would say that if the recommendation were weak, that would mean that we would have a long discussion about other options and take more time to elicit the patient's values and preference of those, of their medical decisions.

Q Let's turn to studies on transitioning medication such as blockers and hormone therapy.

What are the goals of transitioning medications?

A Well, the goals of medical aspects of gender-affirming care are to help the patient achieve appearance congruence, meaning that their internal sense of self is aligned with how they look and present externally to the world.

Q So go into a little more detail.

What are the positive physical or mental health outcomes of taking these medications?

A Broadly speaking, the benefits of gender-affirming care on -- for trans adolescents are profound. You know, adolescence is a really pivotal period of development and to divert somebody from an adolescence of suffering and extreme distress, has positive impacts that pay off throughout adulthood.

A lot of my patients who have received medical aspects of gender-affirming care get to enjoy -- they get to thrive. You know, they get to perform their best at school. They get to develop their talents. They get a softer landing into adulthood. So that's kind of me speaking from my clinical experience.

From an evidentiary standpoint, the studies that demonstrate the gender-affirming care demonstrate significant improvements in depression and anxiety, non-suicidal self injury and suicidal ideation as well as improved body satisfaction and improved psychosocial functioning.

Q On mental health benefits, how are mental health benefit studied?

A There are a large variety of psychometric tools, long and validated questionnaires that mental health specialists and experts can use to quantify mental health so to speak and qualitative studies, too, that engage more with kind of the patient's experiences as they provide it.

Q And is one method preferable to another?

A I think it just depends on the context in which you are asking that question. But as a physician who cares for all adolescents and transgender adolescents, I find all of that evidence quite compelling.

Q Based on your review of available literature, what do the studies of youth on puberty blockers generally report?

A Generally, my assessment of those studies is a stability and psychosocial functioning of stability mental health that puberty pausing medication is in use.

Q So stability. Why is stability important? What are the benefits of having stability in mental health?

A Well, if somebody is on a downward trajectory or suffering, then, to put a pause on that suffering is incredibly therapeutic and profound.

In practice, that pause or that stability in mental health functioning allows that young person to engage productively with a mental health provider so that they can understand themselves. They can clarify their goals. They can learn more about that gender identity. They can participate in more discussion with their family members, and they can just function.

Q Now based on your review of available literature, what do studies on youth hormone therapy generally report?

A Youth who receive cross-sex hormones achieve appearance congruence, meaning that their -- I'm sorry. I already defined that. I shouldn't defined that again. I'm sorry. They achieve appearance congruence, which is the mediator and the causal pathway between treatment for gender dysphoria and mental health benefits. So any time you're kind of studying the effective intervention, it's important to understand the things that mediate that relationship and appearance

congruence is just that.

Q What evidence or studies support the fact that hormone therapy has beneficial impact on mental health for adolescents?

A What studies? There are many. I could summarize maybe three of the ones that I consider to be the most impactful.

So Dr. Chen and her colleagues published an article in the New England Journal of Medicine. It was the largest study to date with four different treatment cites throughout the country. The largest number of participants followed over two years. And what it demonstrated is that transgender adolescents experience relief in their mental health issues when their appearance aligns with their internal sense of self.

Diana Tordoff and her clients out of Seattle demonstrated that by controlling for psychotherapy, mental health support, that there is an independent effect of gender-forming medications on mental health and independent positive effect.

And then, Laura Kuper's group of the Genesis Clinic in Dallas, Texas, also conducted a study of their patients and they showed that gender-forming care leads to reduction in body dissatisfaction, which is a little bit of a double negative -- but I'm just trying to stay true to the literature itself -- and that reduction body satisfaction are also associated with improvement in mental health.

Q Now, can you talk about the harms that manifest if one waits until adulthood to take hormone therapy as medically necessary.

A Yes. In Dr. Shumer's testimony he described what happens when unwanted puberty progresses. That individual ends up with secondary sex characteristics that they did not want. The distress of that accumulates over time. These are people who are trying to live their lives. You know, they are trying to perform in school. Develop, you know, friendships, a sense of self, and it's really hard to do that when there's extreme distress going on.

What we also know, based on clinical research, is that adults who had desired care as adolescents but didn't receive it, report a higher rate of past years suicidality and we also know that even amongst older-presenting adolescents, that they tend to have worse mental health outcomes if they had gender dysphoria throughout their adolescent years than younger-presenting adolescents who received the intervention in a more timely way.

Q And you eluded to studies that support this positive relationships. Can you point to a couple that you are aware of.

A Yes. I think we've covered a few of them. There are, I think, you know, over 16 studies now that demonstrate the mental health benefits of care, but the ones that I just

described, the Seattle Study, the Dallas Study and then the Multicenter Study published in the New England Journal all demonstrate the mental health benefits of this care.

Q Now Defendants' experts in their declarations criticize the reports that you rely on in your own declaration.

What is your response to that?

A Well, you know, I -- I take my position as a clinical researcher, someone who is trained in evidence-based medicine and somebody who provides care for individuals every day very seriously. I was really surprised to see in their declarations inconsistent thresholds of what's acceptable for various types of evidence.

These experts seem to need the highest threshold of evidence possible to evaluate the benefits of care but the assertions that they make in seeking to describe knowledge about gender dysphoria are grounded in logic that wouldn't make it onto the evidence pyramid.

In the Chen Study that we've discussed, two participants committed suicide, and that finding has been used to claim that gender-affirming care causes suicide. And that's not even correlational. It's speculation. So I think the inconsistencies in their use of evidence-based medicine are quite concerning.

Q And in a more specific way, Dr. Cantor opines that some of the studies you cited are deficient because those studies

do not present a causal relationship between the medical care and the outcome.

What's your response to that allegation?

A Well, in some ways, you know, you could swap out certain words or certain phrases. I mean, again, I feel like he's saying these studies didn't use Randomized Controlled Trial methodology. That's just a fact. We know that. You don't need Randomized Controlled Trials to uncover causal links. So I would say that that's far too simplistic of an assertion and the best evidence that we have suggests a causal link between medical treatment of gender dysphoria and improved well being of transgender youth.

Q Dr. Laidlaw and Dr. Cantor disagree with you that WPATH is a term of authoritativeness in the medical community. So, for example, they did bring up the Cass Report in the UK for this assertion that these medications are not safe.

What is your understanding of what that Cass Report says?

A You know, the Cass Report is -- it's a document that provides internal findings. As I understand it, it's based on the N-I-C-E the NICE reviews that were performed by unknown authors affiliated with the National Health Service. It's a little unusual for systematic reviews to not report their authorship. That's a level of transparency that's generally accepted but these reviews weren't really published in a journal or anything, so they weren't put to a peer-review

test.

I would not take those reviews, which informed Dr. Cass's report over the standards of care produced by hundreds of experts in this field who are wildly regarded in the international medical community.

Q Dr. Laidlaw characterizes this interim report as one that led to the closing down of a clinic in the UK.

What do you make of that assessment?

A Well, that clinic wasn't closed and then care was ceased, but those clinical services were redirected to satellite cites throughout the United Kingdom to better serve their patients' needs. If the only gender clinic in the United States was in Georgia, it would be impossible to serve the vast majority of the people.

The wait list for receiving care was close to five years. So if you need to seek care when you are 11 years old, that's an intolerable time to wait. So I think that the situation that led to the production of her report and the redirection of services was really quite grave and like nothing that we've seen here in the United States.

Q In the countries cited by Dr. Laidlaw and Dr. Cantor in the declarations when they talk about care in their various healthcare systems, which one of them has banned hormone therapy for adolescents?

A None of them have banned care.

Q Are you aware of the Georgia law S.B. 140 and what it says?
A Yes, I am.
Q Defense experts talked a lot about this need for more research in this field of medicine, the area of inquiry. How would this law affect the ability of doctors and researchers in Georgia to conduct clinical research on the specific area?
A I know very well through my professional connections and my training and my formative years that this state and specifically this city is home to a great deal of intellectual talent and expertise and that a lot of compassionate care is provided, which serves as excellent substrate for real-world clinical research. The enactment of S.B. 140 would dismantle that completely.

MS. WEAVER: Thank you, doctor.

I have no further questions.

CROSS-EXAMINATION

BY MR. HARRIS:
Q Good morning, Dr. McNamara.
A Hi there.
Q Just a couple preliminary questions.

When were you retained by the Plaintiffs in this case?
A I think it was in June. Probably early June.
Q And you were retained to prepare a report and offer testimony, if called here; correct?

A Correct.
Q And you're being paid $400 an hour for your work with the Plaintiffs?
A Yes.
Q And what's a ballpark estimate of how much time you spent writing the report you put in?
A You know, it's so -- I have been preparing for this so much that I haven't even had a chance to think about it. Any number I give you I hope is not binding, but maybe like 10 to 15 hours, and then editing more and -- let's just say 15 hours.
Q Thank you. And about how much time did you spend preparing your testimony in advance of the hearing?
A How many hours?
Q Um-hmm.
A Maybe another 10 to 15, probably. Feels like more.
Q And I see from your report you were retained in the Alabama case. Can you just discuss the nature of your work on that case.
A Yes. I mean the Alabama case, I actually don't know where it is right now. It is hard to follow these things but I prepared an expert report.
Q And were you paid the same there as you were here?
A No. I was a paid a little bit more.
Q Okay. Before we get into some specific things, you

offered some critiques of some of the European evidence and systematic review.

Can you tell us what you think is the single best study supporting the effectiveness of hormone therapy for adolescent?

A I can't tell you a single study. It's not quite like that because in my mind, there's no hierarchy of which is best. I think they all provide -- they all have their strengths and their weaknesses. They all give us information in one area and together as a whole. That's how I view the evidence.

Q Okay. You would view the -- you were in the courtroom while Dr. Shumer was testifying; right?

A Yes.

Q You would agree with me, then, that the five studies that my friend discussed with Dr. Shumer from Europe are part of that whole that's being considered?

A So when you say studies, what are you considering?

Q I asked you. I mean, I asked you to name the single study or published study, whether it's systematic review, an observational study, that you think is the best single study to show the effectiveness of cross-sex hormones for gender dysphoria.

A So that includes systematic reviews?

Q Sure.

A Okay. So --
Q Sorry. So now we are mixing questions. Let me just restate that.
A Sure.
Q Do you consider the studies you heard discussed with Dr. Shumer to be part of what you just described as that whole mix you considered all together to figure out the best answer.
A Can we review what those five studies were?
Q Sure. It's actually -- they are in your binder there Defendants' 1 through 5.
A I have not looked at the binder at all yet.
Q Should be one labeled --
A 1 through 5. Okay. The NICE Review and the Cass Report, the Finnish Health Authority, the Kaltiala Study and the Ludvigsson Systematic Review.
I would not consider the first three to be producing any new findings. So those are the kind of like the government-produced findings. I don't -- I -- I wouldn't count those -- the Kaltiala Study -- the Kaltiala Study isn't an original piece of clinical research and the Ludvigsson Study is a systematic review, so in and of itself, it is kind of an original piece of clinical research.
Q So your answer to that is when you said there's no single piece of evidence that you can look at the universe and weigh them -- so was your answer, yes, you would consider some of

these or all of these as part of that, just to be clear?
A I would consider the fourth and the fifth as original clinical research that should be considered in considering all of the evidence on gender-affirming care, but the three government-produced reports, you know, as -- I am not really in the habit of using government reports from other countries to consider the evidence on care.
Q Okay. Just, one other quick question on this. I think you suggested that you down weighted the Sweden Systematic Review a little bit because some of the searches that were conducted were too old maybe, I think you said. It was not as current as some other things.
A Yeah. There was about a two-year gap between publication and then the timing in which they stopped looking at the literature.
Q Okay. And just to confirm, what was -- do you remember what those dates were? Do you remember what the gap was?
A Well, let's look right here. I think it was November 2021. Do you want me to make sure?
Q Sure. You have got it in front of you.
A Yes. Like they started in 2014 and searched databases until November 9th of 2021.
Q And would you concede then that the Endocrine Society 2017 Guidelines have the same critique? So I think those were published in 2017?

A Yeah. The Endocrine Society is definitely due to review their guidelines.

Q Okay. Moving on to some other topics.

So according to WPATH, transgender individuals may consider a range of identities and elements of gender presentations when they're exploring their gender identity.

Do you agree with that?

A Yes.

Q Okay. And do you agree that people may spend some time in a gender identity or presentation before they discover it does not feel comfortable and later adapt it or shift it to an earlier identity or presentation?

Do you agree with that?

A I'm sorry. Just read it one more time.

Q Sorry.

A It was long.

Q I don't want to make you keep flipping through things.

THE COURT: I'm asking you to slow down just a little bit. I can see our court reporter struggling here.

MR. HARRIS: Sorry.

BY MR. HARRIS:

Q People may spend some time in a gender identity or presentation before they discover it does not feel comfortable and later adapt it or shift to an earlier identity or presentation.

Do you agree with that?
A Yes. That can sometimes happen.
Q A little bit more on your background.
You said in your report that you provide full spectrum care for youth experiencing gender dysphoria.
Is that correct?
A I provide full spectrum care for adolescents and that includes youths who experience gender dysphoria.
Q Do you prescribe hormone therapy, puberty blockers, or hormones?
A I don't prescribe puberty blockers. I will review patients prescriptions for hormones, if they have received care in a gender clinic.
I take care of patients up to about age 25. My position at Yale is a little unique. I'm kind of their generalized medicine person and we have a gender clinic. So if I meet somebody who is experiencing gender dysphoria for the first time, I'll refer them there for comprehensive services.
Q Okay. So would it be your position that only a endocrinologist would initially prescribe puberty blockers or hormones?
A No. Adolescent medicine physicians do that, too.
Q Is there a reason you don't sort of do it in the first instance?
A Well, yeah. I only have 20 minutes per appointment and I

see a lot of other things. I see a lot of complex trauma, sexual reproduction health needs, sports medicine issues, other menstrual concerns, dermatology. I could go on and on but it's just where my institution needs me is to provide general adolescent care.

Q What percentage of your practice would you say is devoted to specifically treating gender dysphoria?

A You know, I provide -- let me back that up. I couldn't give you a specific percentage. I would say that right now, I probably have about 10 to 15 youths who are experiencing gender dysphoria in my care. I'm not prescribing their hormones or specifically managing their gender dysphoria. That's happening in a multidisciplinary clinic. But they also have other health needs. You know, they might also have Type 1 diabetes or ADHD or really bad acne or need menstrual suppression. So that's what I do for them now.

Q Okay. But -- and you are here testifying as an expert and you are competent to testify about the treatment of adolescents with gender dysphoria. It's a large portion of your report; is that right?

A Yes, absolutely.

Q Okay. So under what you describe as the standard of care for gender dysphoria, what's the minimum age at which a child should receive cross-sex hormones?

A There is no hard and fast age.

Q Okay. What's the youngest age you have seen a child given cross-sex hormones?

A Fifteen, I think.

Q All right. Do you think that standard of practitioners in the area, that would be about the minimum age you would expect to see that?

A Not necessarily. I don't -- I'm not sure I have intimate acknowledge of the specific lower age that my colleagues have prescribed sex hormones at.

Q In Paragraph 44 of your report, you use the phrase psychological maturity. You say cross-sex hormones should only be given once the provider is ensured the child has the psychological maturity to proceed.

What do you mean by that?

A Well, that is a determination that's made by a mental health specialist who is competent in areas of gender. And it's made after a series of discussions between parents, the patient, and their providers. And at that point, we, you know, the clinicians endeavor to make sure the patient is concrete in their identity, and that they understand the risks and the benefits and the effects of care.

Q And you agree with Dr. Shumer, I assume, that giving opposite sex hormones based on someone's natal sex will induce physical characteristics that are different from what otherwise would have developed?

A Yes.
Q Please -- I promise I won't do this that much -- if you will turn to Plaintiffs' Exhibit's 9, which is the WPATH Standards, Appendix C which is on Page 254.
A 9?
Q Yeah. There are two binders. It might be in the other one.
A And then you said what?
Q Appendix C, Page 254.
A Is it 254.
Q Yes, it is.
A Okay.
Q Great. And I just want to confirm, do you agree Table 1 lists --
A Oh, I'm sorry. I'm sorry. I am so sorry. Okay. Yes, okay.
Q Okay. Do you agree that Table 1 in this document lists the expected physical changes we'd expect to see from gender-affirming hormones?
A Yes, I do.
Q And you agree that that would be the expected, you know, that would be what one would expect from a testosterone-based regimen on top and estrogen-based regimen on the bottom?
A Yeah. Any variety of these, yes.
Q Okay. Now take a look at Table 2. And Table 2 says

Risks Associated With Gender-Affirming Hormone Therapy; right?
A Yes.
Q And what -- tell me what is the bold things -- what do the bold risks indicate?
A Under estrogen-based regimen of venous thromboembolism infertility and under the testosterone polycythemia infertility.
Q And what does it mean -- it says here bolded items are clinically significant. Tell me what that means.
A I would need to see if -- I don't know if they have like a footnote where they describe what clinically significant means. I would assume they are likely or deserved particular consideration.
Q Okay. Tell me what a venous thromboembolism is.
A It's a blood clot.
Q Is that dangerous?
A Yes.
Q Tell me what polycythemia is.
A It's the overproduction of red blood cells or it's a higher level of blood cells than the normal range.
Q Okay. So I just want to confirm -- so seeing the physical changes in the risks, so it's your opinion that a 15 year old could have the psychological maturity to consent to treatments with this risk profile?
A Yes. You know, it's maturity. I do believe so, yes.

Q Okay. And it's also your opinion that someone of that age would have the psychological maturity to consent to interventions that could jeopardize their fertility?
A I do want to just introduce a little caveat. Adolescents or minors do not consent to treatment. They assent. They have medical decision makers that provide consent. So psychological maturity to understand, to assent, but they're joined by a medical decision maker who's often a parent or a guardian who has the kind of like highest expected ability to understand the risks and that benefits.
Q Okay. So because -- do you agree that, for example, on fertility, a 15 year old may not have fully thought through potential future things, like ability to have children? That's often not on a 15 year old's mind; right?
A Sometimes it is. I wouldn't say unilaterally. I have talked to many transgender adolescents who have been very thoughtful about their family-planning goals and taken steps to preserve their fertility or, you know, considered other ways that they might wish to become parents. So I wouldn't make a black and white determination like that.
Q Okay. WPATH -- we don't have to turn, but we can if you need the full quote. WPATH -- the same document we were reading says that there are only quote preliminary results from retrospective studies evaluating transgender adults in the decisions they made when they were young regarding the

consequences of medical-affirming treatment on reproductive capacity.

Does that sound accurate that they say preliminary results?

A Preliminary -- yes. There are new studies coming out all the time. But retrospective studies, as you mentioned, would be the only way you go back and ask people.

Q Georgia, like many other states, generally with very tiny exceptions, says that 18 is the minimum age for marriage.

Do you think children under the age of 18 can assent to marriage with parental approval?

A I remember being a medical student at CHOA Egleston Hospital and thinking through some of these things and being very kind of dialed into Georgia's laws and nuances of, you know, cultural backgrounds of the diverse patients that got health care there.

Specifically regarding marriage, I don't think that's for a doctor to make a determination on.

Q So you don't have an opinion about whether a 15 year old could assent with parental approval to marriage?

A As a physician, I do not.

Q Okay. Okay. So you mentioned a few minutes ago about parents, which I'd like to go back to. You say many times in your report, you know, they are in there. We'll need to look at one.

In Paragraph 34 of your report you say informed consent by parents is a foundational practice of adolescent medicine.

So you are of the view that hormones would be given without parental consent?

A That's correct.

Q Does that reflect the standard of care as you understand it that there would be parental involvement and consent on a decision like that?

A For cross-sex hormones, yes.

Q Then I'm confused about some of the WPATH statements.

Again, we can turn, if you would like, but WPATH says there should be parent/guardian involvement, unless their involvement is determined to be harmful or unnecessary.

Can you help me understand what that means.

A Where you are looking?

Q Sure. It's S114 right in the heading that carries over to 115. The bold heading that carries over from 114 to 115. Take a look at that.

A We recommend health care professionals prescribe sex hormone treatment regimens as part of gender-affirming treatment in eligible transgender and gender diverse adolescents who are at least Tanner stage 2, with parent/guardian involvement unless their involvement is determined to be harmful or unnecessary to the adolescent.

Well, I think that's a stipulation for protecting

adolescents who are emancipated or adolescents who are being physically harmed by their parents sometimes not infrequently with all adolescents but at least in my experience, you know, some child protective services body may be involved for various reasons. So I think they have to put that caveat in there.

Q Okay. So I want to be clear about your view. Your view in a scenario where say it's 15 year old who wants hormones and the parents say -- you know, completely on the same page with each other. We think the risks of this are just too great and, you know, you have got to wait until you are 18, that's a decision that you would respect and support?

A Absolutely. That patient would not receive care. I mean they wouldn't receive medical aspects of gender-affirming care. They would receive ongoing psychological support. It would be incredibly important to maintain the therapeutic relationship with that family. To maintain connections to the patient to ensure that they're safe and as well as possible. That is not an infrequent experience of mine.

Q Okay. And I guess I'll ask you one more question about the psychological maturity.

Do you think children at the age of 18 have the maturity to assent to surgical procedures for gender transitions?

A In some cases, yes. In some cases their dysphoria is so profound and not adequately relieved with other medical

treatment. I have known adolescents who have received gender-affirming surgery before the age of 18 and tremendously benefited from them.

Q So do you think there are any gender-affirming medical interventions, surgical, medical or otherwise, that shouldn't be done on children under 18?

A Do I think there are any interventions that shouldn't be done on adolescents?

Q Adolescents, right.

A That is a question I -- no. I don't think that there is any hard and fast rules to that. I really -- I really do place stock in WPATH and not having hard and fast age limits because every individual is different. Every individual's experience with gender dysphoria is different and every individual needs different things.

Q Okay. And just going back to some of the studies for a bit. I know you addressed some of the European studies. Do you -- when you said you are familiar with those, do you have any reason to believe any of those studies were motivated by anti-trans animus or bias?

A I don't know and I'm not the right person to ask because I haven't done thorough inventory of the conflicts of interest or the potential thereof. It is a little concerning or it raises a red flag for bias that the NICE reviews from the UK don't have authors. We don't know who wrote them, so we can't

ascertain what their credentials might be.
Q And you -- I know you testified before about the difference between clinical guidelines and studies or research. If there were clinical guidelines that recommended treatments with minimal benefits and serious risks, would you think doctors should follow that guideline, just as a general matter?
A I can't answer that question. It's so hypothetical and so broad, I need --
Q I mean --
A It's impossible.
Q Do you think clinical guidelines should be followed in all circumstances?
A I can't think of a specific area in which a clinical guideline is not trustworthy or it's unreliable. The processes by which these guidelines are developed are so robust that I'm just kind of running through my head what the guidelines I'm familiar with.
Q Well, let's --
THE COURT: Please don't interrupt. Please don't interrupt the witness.
BY MR. HARRIS:
Q Please finish.
A That I can't think of one that I know of. When we begin to think about hypotheticals, I simply can't do it without

concrete terms in reality. I'm not trying to not answer your question. It's just not how I think about medicine.

Q Okay. Or let's say if there were a guideline from ten years ago that was still out there and other research had come in since then that questioned the effectiveness or safety of that intervention, that might be a reason not to follow it; right?

A It might be a reason for that organization to issue a new set of guidelines and I don't think it's quite as black and white, so I don't follow those guidelines. It's a lot more nuance than that. You know, we use these guidelines and we also use new and best available evidence simultaneously.

The scenario you are describing is fairly unusual, at least to my knowledge. Of guidelines I use, I think, you know, they're updated with enough frequency, such that that has not happened and you may be eluding to the Endocrine Society Guidelines last updated about seven years ago.

Q I was just asking a hypothetical.

A Okay.

Q I have one last question. It's a longer passage so I'll just have you to turn to Page S46 of the WPATH Guidelines which is Plaintiffs' 9.

A Okay.

Q Would you just read the two sentences beginning with the word despite starting in the middle of the top paragraph.

A I'm so sorry. What page is it?
Q I'm sorry S46. I might have said that wrong.
A You know you didn't -- I honestly might need glasses, S46.
Q And then the top left paragraph right in the middle there is the word despite and the two sentences starting right there. Actually would you mind reading them for the court reporter.
A I would, if I could find it. S46, top left.
Q About halfway through that paragraph.
A Oh, it's in the middle of the paragraph. The paragraph starts at the time of this chapter's writing.
Q The paragraph above that. The half one.
A Oh, there we go. Okay. Thank you. Thank you.

Despite the slowly growing body of evidence supporting the effectiveness of early medical intervention, the number of studies is still low, and there are few outcome studies that follow youth into adulthood. Therefore, a systematic review regarding outcomes of treatment in adolescents is not possible. A short narrative review is provided instead.

Q Okay. And the question I have is do you agree with WPATH that the number of studies is still low and there are few outcomes study that follow youth into adulthood?
A Yes. I agree with that.

MR. HARRIS: Thank you, doctor.

THE COURT: I have one question for our witness. And this was a lingering question from the direct examine and I'll let you ask any follow up, if you would like after this.

BY THE COURT:

Q So one of your critique as I understand it of the expert declarations that were submitted by the State is that -- and correct me if I have gotten this wrong or this mischaracterizes any of your testimony -- but I think you said the State's experts were endorsing inconsistent thresholds as far as acceptable medical evidence in this sphere. And as I understand it, your testimony was that they were endorsing a high threshold as far as the effectiveness of hormone therapy for the treatment of gender dysphoria and a lower threshold as to certain other factors that they discussed. I did not grasp what those other factors were, so I was wondering if you might expand on that.

A Yes. So the example I gave was one of the State's experts made a statement in his declaration that in a study where two suicides among transgender youth were observed, that that indicates that gender-affirming care causes suicide. That statement is grounded in -- it relies on the causal evidence that doesn't exist.

If you think about the evidence pyramid as it was presented by the Defendants' experts, they want to live in the systematic review top of the pyramid to assess all the

evidence of benefits, but when they try to describe other phenomenon that exist in clinical research in this actual care, they make a lot of speculation statements that are grounded in no evidence.

There's been no evidence that demonstrates that gender-affirming care causes suicide. And to read a statement like that is fundamentally unscientific and wrong. There are other statements that are made in those declarations which I can recall for you, if you would like, but it's kind of one strong example of a significant inconsistency.

THE COURT: I appreciate the clarification.

BY MR. HARRIS:

Q So that same study that you mentioned I just want to confirm is it your position that Chen does not establish causation on a causal link between transitioning medications and well being?

A They establish a causal link between transitioning medications and appearance congruence and well being. A causal link is not a hundred percent causation but they're building the pathway for how you get from medical intervention to improved mental health. They showed with really sound statistical methods that this mediator of exposure to outcome is appearance congruence.

Q Okay. Do you acknowledge -- I'm going to read it. We don't have to turn there. You can tell me if I misword it.

Chen says, finally, our study lacked a comparison group which limits our ability to establish causation?

A It's limited but it is there.

MR. HARRIS: Thank you.

THE COURT: Redirect?

MS. WEAVER: Just a few questions, Your Honor.

REDIRECT EXAMINATION

BY MS. WEAVER:

Q Dr. McNamara, you were asked on cross about the table in the WPATH Guidelines stating the risks of receiving hormone therapy treatment like blood clots. They are possible risks; is that correct?

A Blood clots are possible risk. The GnRH agonist example would be -- so I mean as Dr. Shumer mentioned when an individual receives estrogen, they do so in a way that's meant to mimic the physiologic state of a cisgender woman and every woman is at a high risk of blood clots, a higher risks than males and a higher risk than an aggregated risk of all people. So we are very careful about counseling and then that's a really important thing to highlight because there are certain medical conditions that can be co-occurring that would raise one's risk or, you know, certain behavior habits like smoking cigarettes.

Q And do all medical treatments have possible risks?

A Absolutely, yes. I spend a lot of time counseling around

the general risks of all treatments.
Q You were asked about a minor's ability to assent.
Can an adolescent assent to risks to receiving care, if those risks outweighs negative mental health experiences, such as suicidal ideation, depression, anxiety?
A Yes, absolutely.
Q And minors cannot receive medical care without consent of a parent or a guardian?
A A parent guardian or other medical decision maker, correct.
MS. WEAVER: I have no further questions, unless you have additional questions.
THE COURT: I do not.
Are you all finished with this doctor?
All right. Thank you. You are excused.
Counsel, it is 12:30. I think I'd like to break for lunch at this point. Why don't we -- I'm trying to think we have two more witnesses to hear from today; is that right?
MR. BRADSHAW: Yes, Your Honor.
THE COURT: Let's take an hour for lunch and we'll be back at -- slightly less than an hour. We will be back at 1:30.
(Luncheon recess was taken.)
THE COURT: I understand we will hear from Defendants' witness.

MR. STRAWBRIDGE: The Defendant is going to call Dr. Paul Hruz.

THE COURT: Good afternoon, sir.

COURTROOM DEPUTY: Please raise your right hand.

PAUL HRUZ,

a witness herein, having been first duly sworn, was examined and testified as follows:

COURTROOM DEPUTY: You may be seated.

Sir, I want to remind you that your testimony today is very important for the entire court to hear, so please remember to speak directly into the microphone.

At this time, can you please state and spell your first and last name for the record.

THE WITNESS: Paul Hruz. P-a-u-l H-r-u-z.

DIRECT EXAMINATION

BY MR. STRAWBRIDGE:

Q Dr. Hruz, can you briefly describe your educational background.

A Certainly. I received my undergraduate degree in Chemistry at Maquette University. I then went to the Medical College of Wisconsin where I received my M.D. and Ph.D. degrees with --

Q I'm already going to have to stop to ask you to slow down just a little bit.

A Ph.D. in Biochemistry. I then completed my residency

training at the University of Washington in Seattle and then went to the University of Washington University in St. Louis, where I received my training in pediatric endocrinology.

Q Okay. And can you explain your professional experience since your graduation from medical school.

A I have been a practicing pediatric endocrinologist since 2000, joining the faculty at Washington University. I'm also a physician scientist involved in scholarly activity related to scientific research and have scientific duties related to education of the next generation of physicians.

Q I don't think we need a full list but have you worked on or published in academic journals, medical journals?

A During the course of my career, I have published over 60 papers in established journal, yes.

Q Do you serve as a reviewer for any professional journals?

A Yes. I routinely serve as a reviewer for a number of journals, including diabetes and the Endocrine Society.

Q Do you have a -- I believe you said you do have a clinical practice?

A That is correct.

Q Can you give us a general idea what's involved in your clinical practice?

A So as a practicing pediatric endocrinologist, I see patients with the full spectrum of pediatric endocrine disease beginning at birth all the way into the early 20s covering

growth issues, puberty issues, thyroid issues, issues in glucose metabolism. Anything that involves the endocrine or hormone system.

Q And are you familiar with the scientific literature regarding the administration of cross-sex hormones to children with gender dysphoria?

A Yes. I am very familiar with that scientific literature.

Q And how have you become familiar with that scientific literature and for how long?

A I began investigating the scientific evidence for the involvement of pediatric endocrinologist in the care of patients who experience gender dysphoria while I was serving as Chief of our division of gender endocrinology in 2012. At that time, one of my faculty members approached me desiring to start a age gender clinic. And in my due diligence, in responding to that request, it necessitated me looking at the scientific evidence for the relative risks versus benefit of that intervention and I have continued in the study of that literature since that time.

Q And before we get into the specifics of that literature, I thought it might be helpful if you would just talk a little bit about the Pyramid of Evidence that we heard described earlier today and how that informs your approach generally as a pediatric endocrinologist.

A So it's very important to recognize the basis for making

medical decisions, particularly in the area of pediatrics and in my specialty as a pediatric endocrinologist, it is acknowledged that there are varying levels of evidence that have already been discussed here today all the way from expert opinions in case reports all the way up to Randomized Controlled Trials and meta-analyses and systematic reviews of those higher quality studies. It's essential that one recognizes that when one is going to embark on any medical intervention, it involves an assessment of relative risk versus relative benefit.

For those interventions that carry higher levels of risk with lower expectations from benefit, the bar is very different than for interventions that carry low risk and have a high potential for benefit. So it's a risk benefit analysis and the need for higher quality studies is going to be proportionate to the intervention that is being proposed.

Q And could you just kind of describe briefly what the levels of Pyramid of Evidence are generally accepted to be.

A So, again, at the highest level of evidence usually is a meta-analysis or systematic review of high quality studies, including Randomized Controlled Trials. There are levels of evidence that include controlled longitudinal studies. Then there are studies that are retrospect and cross sectional in nature. And then there are categories of low level would be a case report and observation or a paper that is published based

upon what one perceives as one's clinical experience known as expert opinion.

Q Do you think that -- well, strike that. Are you familiar with what's known as GRADE?

A Yes. I'm very familiar with the GRADE system and as it is used to assess the quality of evidence that is being used in putting together clinical practice guidelines.

Q And what is GRADE?

A So GRADE is a system that attempts to acknowledge that there are varying level of evidence. High levels are evidence that is deemed to be of high quality. Can indicate that the conclusions that are reached in a clinical practice guideline are very likely to be the true effect, as opposed to lower quality evidence, which by its very definition, means that the effect that one observes or expects to observe may be substantially different as new information becomes available.

Q What -- based on your experience and review of the scientific literature, specifically regarding the use of hormones on gender dysphoria children, what observations do you have about the relative quality of evidence that's available for review?

A So regarding the question of quality of evidence -- and this was apparent when I began my investigation over a decade ago, and has continued to the present day -- is that the quality of evidence is very low in general and at best, the

studies that are done have significant limitations, weaknesses, and biases and do not allow one to be able to make conclusions about the causality of intervention versus response.

Many -- much of the literature at best, can show association. It is very important to recognize what these limitations and weaknesses are and the specifics whether there are biases in patient recruitment, there are biases in study design, in data collection and data analysis, whether patients that are lost to follow up, whether there is sufficient sample size to draw definitive or important conclusions. That we recognize the various potential and established confounding factors in the results that are observed.

All of this is a part of the normal practice of medicine. It's essential to aim for the highest quality evidence, and, again, in proportion to the risk versus benefit of the intervention that one is studying that question.

Q And before we get to the discussion of the literature on risks and the benefits, how many, if any, Randomized Controlled Trials have you found regarding the treatment of youth with gender dysphoria?

A So I think it's been addressed again earlier today that there are no Randomized Controlled Trials in the area of affirming-hormonal interventions in the treatment of gender dysphoria youth. They do not exist.

Q Did you hear the suggestion today that it's impossible to do a Randomized Controlled Trial with respect to the administration of hormones to gender dysphoria youth?

A I did, indeed, hear that claim. And it's based upon a problem that I've heard many times made. It's a false portrayal of how that study would be done. So it is often presented that it is unethical to do a Randomized Controlled Trial where one arm of the experimental group receives affirmative hormones and the control group receives no therapy. That, indeed, would be unethical. However, that is not the way that scientific investigation is done, in any randomized controlled trial.

In designing a Randomized Controlled Trial, one begins with a scientific premise. One postulates a hypothesis about a particular intervention and the outcome that would occur from that intervention and then one designs the scientific study to -- and we actually in the scientific world begin with a presumption of skepticism, meaning that we begin with the hypothesis that there is no difference in the control and the treatment group and then we seek evidence to disprove that so-called known hypothesis.

In designing a Randomized Controlled Trial, what is done is that both control and treatment groups receive identical interventions with the exception of the independent variable that is being investigated in that study. Meaning that one

does not receive one type of care and the control group receives nothing. So in a properly controlled randomized controlled study in assessing the question either of safety or of efficacy of affirming hormones, one would be providing all of the care to both groups with the exception of that intervention that one is investigating.

Q And is it your understanding that there are, in fact, some children with gender dysphoria who either by their own decision or their parents decision do not want to take cross-sex hormones?

A It is very well recognized that there do indeed exist individuals that have the condition of gender dysphoria that do not receive affirming hormones, yes.

Q Can you think of any other reason why the random controlled study that you just hypothesized could not be conducted?

A Quite to the contrary. I think I would say that it is absolutely necessary that one conceive, design, and implement the higher level of evidence within the confines of the current understanding of relative risk and benefit, so there's no reason why one would not be able to conduct that Randomized Controlled Trial in the proper manner that I described.

Q Other than a --

MR. BRADSHAW: I apologize, Your Honor. I have just learned that some of our lawyers are stuck in an elevator on

the way back from lunch. I don't -- I apologize for interrupting.

With the Court's indulgence, could we take a ten-minute break in order to get the lawyers out of the elevator.

THE COURT: We absolutely can. I'm sorry to hear that. I apologize to both sides for the interruption but I think that would be best. We'll see what we can do on our end to facilitate.

So we are going to adjourn for ten minutes.

MR. BRADSHAW: My apologies.

THE COURT: No problem.

(Whereupon, a recess was taken.)

THE COURT: I apologize to all for the numerous ways in which our building has malfunctioned today. I hope everyone has had time to regroup and I just assumed that Plaintiffs' counsel were preparing witnesses, so I apologize for starting without you all.

All right. We are back on the record and ready to proceed.

MR. STRAWBRIDGE: Thank you.

BY MR. STRAWBRIDGE:

Q Dr. Hruz, before you were telling us about RCTs. You mentioned there are other types of enhanced studies or evidence at the higher pyramid besides Randomized Controlled

Trials.
A That is correct. And one of the examples I mentioned of that is a controlled longitudinal study where one can make some conclusions, provided that in the design of the experiments, that one adequately recognizes any potential compounding variables and looks at every effort to minimize bias.
Q And when you say confounding variable, what do you mean?
A Confounding variable, which means that very frequently in scientific study, if one is not aware, for example, if one sees and this is what is seen in the less rigorous studies where one sees an association between intervention and an outcome, it is not possible to conclude that the intervention itself led to the conclusion and it's very possible that there is another factor that co-segregated the experimental intervention that itself was responsible for the outcome. That would be considered a confounder.
Q And just to put that into specific context with respect to gender-affirming therapy, is there an issue with confounding variables in the studies that are available?
A There absolutely are very significant confounding variables. Perhaps the most significant is that in most of the studies that are showing associations that the intervention group is also receiving psychotherapy, and it is not possible when -- even if one sees a benefit, that one can

conclude that, for example, it's the hormone intervention versus the psychotherapy, if the study is not properly controlled and designed to address that confounder.

Q Based on your experience and your review of the literature, do you have an assessment as to what the study says regarding the risks of cross-sex hormones being administered to gender dysphoria children?

A I have many observations in my review of the literature about the risks. Many of them are known, many of them are likely and some of them are unknown, because they've not been investigated. In reviewing the data that is currently available, much of it pertains to the underlying molecular mechanism in which affirming hormones have on the body. So some of them are known.

For example, it was mentioned previously about increased red blood cell count, polycythemia and venous thromboembolism or stroke with estrogen. The side effects go far beyond that. It includes differences in metabolism, which includes lipid effects, effects on lean body mass versus fat mass, things that increase the risk for cardiovascular disease later in life from the prospective of a endocrinologist, and there are already other types of risks and the intervention that pertain to how it actually will affect the natural outcome and trajectory of an individual. For example, the intervention itself may lead to a different effect long term because of the

intervention itself.
Q Can you give us an example of that.
A One of the most concerning aspects is that, for example, the data showing that the vast majority of individuals that begin on puberty blockers or GnRN agonist many proceed on to cross -- to hormonal interventions. That is in stark contrast to prior data where we saw this high risk of that condition and it certainly is something that has not been rigorously studied but very valid hypothesis is that by giving an individual the puberty blocker followed by the cross-sex hormones, that you're actually influencing that rate of realignment of gender identity to biological sex that would have that outcome, if not receiving that intervention.
Q But to be clear, that's just a hypothesis. That's not a study?
A Absolutely.
Q What other known risks are associated with the treatment of cross-sex or gender-affirming hormones to children?
A So there are many concerns. One relates the literature on -- and I want to emphasize that the concern about giving for example, testosterone to a female is not the same as giving that same hormone to a male. And that it is erroneous to make a claim that the expected outcome is going to be the same for achieving hormone levels that are in accord with the opposite sex.

There's a molecular basis for that. It is the whole reason why our National Institute of Health requires when new drugs or new interventions are being investigated that one studies both males and females, recognizing that the affect of that intervention is not going to be the same. It's because of sex-determined differences that are present in every single cell of the body, that lead to modifications of DNA, we call epigenetic changes, that will influence the downstream effects of that intervention. So giving estrogen to a male is not the same as giving it to a female.

So in relation to cardiovascular risk, there are many questions because many of the changes in lipids, in blood pressure, in insulin sensitivity that have been observed with existing studies often can take decades to manifest as a heart attack.

The same questions occur in relation to cancer risk. Many of those outcomes that related to cancer can only be observed with longer-term follow up. We are already seeing evidence that in many cases that tumors are developing within one-sexed individuals that are usually only seen in the opposite sex, and much of that needs to be investigated as to the specific role of that hormonal intervention in that outcome.

Another example related to body mass and obesity. It is very-well documented that the hormone exposure has significant

changes. Again, that has very serious health effects that are well recognized outside of the question of gender-affirming interventions. We know the effect of having high antigen levels or having increased apostate.

I can give you one example in relation to females that have abnormally high-level of androgens. Aside from the question of gender dysphoria, that condition often occurs after -- observation occurs in individuals that have Polycystic Ovarian Syndrome. It is a disease that we recognize the medical risks associated with excess androgen exposure and we aim to lower androgen levels to prevent those adverse effects.

It is also important to recognize that we are talking about androgen levels that are observed frequently in that condition of Polycystic Ovarian Syndrome are much lower than are observed and aimed to be achieved in the affirmative approach.

In fact, the levels of testosterone that are achieved by the affirmative intervention of giving testosterone to females are generally in the range that would be seen with endocrine secreting tumors and so it's erroneous to say that there is not a significant risk by that hormone administration.

Q Did you hear Dr. Shumer testify earlier today about the risk of infertility arising in the treatment of cross-sex hormones?

A It was claimed in his declaration and in his testimony today to minimize the effects of the hormone intervention on fertility. And the claim that one can arrest development at an immature state and then sews it to cross-sex hormones has never -- that -- I have never seen, that successful pregnancy occurred after that course of events.

The studies that Dr. Shumer is referencing are generally studies in which the cross-sex hormones were administered after gonad maturation. And in those circumstances, there are still concerns about fertility but it's entirely different to use that data to make a claim that one can achieve fertility, when one administers these cross-sex hormones to the immature gonad.

Q I want to just ask you to talk a little bit about what your view of the literature indicates as to the case for the benefits of providing cross sex hormones for gender dysphoria.

A So this, again, in the analysis it requires both assessment of risks and purported benefit. And, again, there is a calculation that occurs in all areas of medicine that is dependent upon the condition that one is addressing.

As I have read the literature, the main justification for embarking upon a medical intervention that introduces what we would call I pathogenic disease, meaning that we take an individual that has normally-formed and functioning sexual anatomy and giving an intervention that disrupts that normal

function, essentially making that individual dependent upon the medical establishment really long term, if not lifelong, had been justified by purported benefits in preventing suicides.

It's very important to recognize what the literature that is currently available says and does not say about that outcome. There are many different measures of changes in psychological health and well being. Body perception is only one of them. Since the high risk is being justified with the purported high benefit of preventing suicide, it's particularly important to be very rigorous in studying that as an outcome in the studies that have been conducted in this area.

Of note, that the studies where we look at that potential benefit, in the studies themselves, fail to show that benefit, or if they do show that, it is in a manner that is misleading in the context by which it is being presented.

Q And what specifically do you think the studies indicate regarding the basis for assuming that cross-gender hormone treatment supports a finding of decreased risk of suicide?

A This is where coming back to your previous question about quality of evidence becomes very, very important. That the absence of the higher quality data, one needs to look at things that are associations that are done often on very small sample sizes with significant biases in patient recruitment.

Subjects that are lost to follow up and most notably, short-term follow up.

Given all of that, when one looks at the studies, many of them that are even cited as evidence by the Plaintiffs' experts when one looks at the data itself, that that claim is not supported by the actual data. Meaning that the rates of suicidal ideation currently remains markedly elevated and frequently in the studies, they are not statistically different from the pretreatment level.

Q There was some discussion, in particular of the Chen Study earlier today.

Are you familiar with that Study?

A I am very familiar with the Chen Study.

Q What is your view as to what information we can take from that Study for purposes of treating youth with gender dysphoria?

A So I think it's important before answering the question just to present very briefly what that Study -- how it was designed. And it was -- it's a longitudinal study that was done at four different centers and the Chen paper presented the two-year follow-up data.

It has about 350 patients that were enrolled in that study. It was -- like I mentioned earlier, it is not a controlled study. All of the patients that were enrolled in this longitudinal study also received psychological support.

By its design, it cannot make the conclusion contrary to the Plaintiffs' experts, that there is a causal relationship between access to gender-affirming intervention and any of the psychological outcomes.

Q We were --

A Of note, that Study purported that it was going to exclude patients that had significant psychological difficulties. Yet at baseline in that Study, a very substantial proportion of the individuals that were recruited had severe depression at the time they were enrolled.

The outcomes themselves -- this is another important point, being a larger study one can see sometimes statistical difference that has no clinical significance. So we have to look at the question of is the difference that one sees -- this is one of the criteria in the GRADE system -- that will influence the strength of the study? Is the magnitude of the effect that one sees and when one sees a very minimal effect that even if one accepts as statistically significant, it is not clinically significant?

Another factor in that Study is that there was quite a bit of variability in looking at the data itself that there were some patients that had improvement of the measurement outcomes. There were others that had no changes and others that had actually worsening of that outcome. And because of the way that study is being conducted without a control group

that we're only looking at not even two-year data because most of the patients in that Study did not have the full two years of follow up, one cannot use that data to make the claim that is being made this is demonstration of the benefits of the gender-affirming hormonal intervention.

Q Were you in here when Dr. McNamara suggested that experts for the Defendants had made the claim that that Study demonstrated that gender-affirming treatment causes suicide?

A I noted that and I -- that statement has not been made. As far as a cause and effect there -- when I mentioned it in my declaration, I merely noted that it was important to recognize that there were two deaths. And the reason why that's important is because in any other trial, when you have an outcome that leads to death, the Institutional Review Board or the IRB, normally will investigate the circumstances that led to that very, very serious outcome. One cannot make a statement about whether the intervention caused that or not.

In many of the associative studies that I am talking about here, at best, one can say that at least by the outcome measure, it didn't solve the problem. When you have, for example, in some of the studies up to 50 percent that have suicidal ideation at the beginning of the study and nearly 50 percent at the end of the study that still have suicidal ideation, one can, I think, very confidentially say it didn't fix the problem. What one cannot say is what would have

happened without that intervention to that follow-up measure.
Q Are you persuaded by the recommendations that are set forth the WPATH Standards of Care?
A So WPATH has -- I'm very familiar with their recommendations, both in the earlier iterations and in the current iterations in the Eighth Version of their Clinical Practice Guidelines. So I would say that the concerns I have about the lack of quality evidence that has been shared by others is reflected in their attempt to gather information in that document, but it's not properly acknowledged about the poor quality of evidence.

One of the major concerns I have about that document, just to summarize, essentially they acknowledge that we don't have good evidence but they follow up that lack of evidence with a very definitive statement about what needs to be done. In the scientific and medical profession, that disconnect is highly problematic.
Q Is that what GRADE intended to help assess, whether the evidence supports a particularly strong recommendation or not?
A That's exactly -- so the GRADE system is designed to allow one to know that the recommendations that are being made are based on low quality evidence. I would say that it's not unique to this area, where recommendations are made on low quality evidence, but almost always, when that is done, there is the utmost of caution, recognizing limitations and very

explicitly the directive of that -- those knowledge gaps need to be filled in. And, again, as I said earlier, it's proportionate to relative risks versus relative benefit.

Q Do you think the clinical guidelines should take into account systematic reviews of the literature?

A Most certainly. And I think that, in fact, what I heard earlier today was really quite the opposite of the way the scientific and medical establishment normally looks at evidence. What essentially is necessary -- so the whole purpose of systematic reviews is to acknowledge that when one looks at a group, a whole cohort, not the individual patient in front of you about the health of that individual and the effect of intervention, there is a high potential for bias, both in the patient and in the provider.

The systematic review is designed to be able to mitigate underlying biases, to be comprehensive in the literature that one looks at with very rigorous criteria for studying inclusion and outcomes that are going to be measured. The whole purpose of that is to be able to gain information that one may be misled by relying on clinical seriousness.

Q Are there examples you can think of, just one or two, of times when recommendations made by clinical guidelines in your field were reversed, based on development in the literature?

A Yes. I can draw to the Court's attention that there were a whole series of articles in the BMG Journal several years

ago that really outlined the benefits and the risks of clinical practice guidelines.

Clinical practice guidelines can be useful in that they allow one to synthesize a large amount of data for a busy clinician that does not have the time to be able to delve in detail into the literature, but it's only as good as the data that's available in the low quality data that's being used that may lead to problems.

For example, there is a long history of clinical practice guidelines that when new data becomes available the recommendations themselves have completely changed and sometimes in a very drastic way.

For the example of giving hormones to post-menopausal women, giving steroids to posttraumatic men, those are two examples that come to mind, you know, at the top of my head here.

Q In those cases, the clinical guidelines used to recommend a treatment that is now not recommended?

A That is correct and it's based upon new evidence that became available.

Q We heard some discussion earlier today about recent developments in some of the European countries and some reviews that have been done by the governments of England, Sweden and Finland.

Can you just briefly describe your view as to what the

relative persuasiveness of those reviews are.

A Most certainly. I can begin with the conclusions reached in each of those reviews, both the two UK and ICE Studies, the Finland Review and the Swedish Systematic Review were generally in alignment with my investigation over the last decade of quality of research, being more comprehensive and more thorough than I would have the means to do alone.

In each of those situations, it was recognized that there is an absence of high quality evidence that not only was there not high quality evidence, that there were significant concerns that the relative risk versus benefit is not being met. And in responses to that, in general, these European countries have changed the way that they are recommending that one approaches this problem of gender dysphoria in youth. Prioritizing psychological intervention, recognizing that there is significant risks in potentially irreversible hormonal intervention and most notably, moving toward if one is going to receive that care, it needs to be done within the setting of a properly-designed experimental protocol which is what one would normally do in other areas, when you are dealing with an intervention with high risk with very low quality data.

Q Have you ever had occasion in your clinical practice to treat patients with gender dysphoria?

A I have in my career treated dozens of patients who have

gender dysphoria. I see them routinely with glucose intolerance, diabetes and possibly thyroid disease, hypertension. All of the endocrine diseases that I normally treat can be observed in patients that also experience gender dysphoria.

Q Have you ever recommended that a patient with gender dysphoria accept cross-sex hormones as a treatment?

A As I do in all areas of medicine, I do not recommend interventions that I have not seen that they are sufficient to benefit in relation to risk. It is a standard practice that all physicians generally apply to and because of my extensive review of the literature and my conclusion of the current state of knowledge, there is not sufficient evidence of the benefit that outweighs the risk, it would be unethical for me to do so.

Q If new evidence were to come to light that were to change your mind with respect to the state of evidence, would you reconsider the advice that you give patients in that area?

A In the decade, over a decade that I have been involved in this discussion, I have been advocating for the quality studies that need to be done. I've offered in my own institution to participate in the design of studies. And as a physician scientist, one has to be very, very aware that the whole reason we do science is to gain knowledge. We want to maximize benefit and minimize risk.

So the answer to that question is unequivocally, yes, that we need higher quality data. If that were present to change that assessment of risk versus benefit, it would influence my approach.

MR. STRAWBRIDGE: I don't have any further questions.

THE COURT: Cross.

CROSS-EXAMINATION

BY MR. MCINTYRE:

Q Good morning, Dr. Hruz. My name is Steve McIntrye. I represent the Plaintiffs in this litigation.

A moment ago you testified that you have treated patients who have gender dysphoria. Isn't that right?

A I have treated patients who present that they have -- they are being cared for in other settings, correct.

Q But you have not treated patients for gender dysphoria. Isn't that right?

A I am a pediatric endocrinologist. I treat endocrine diseases using the same criteria for all of the endocrine disorders that I treat, weighing relative risk and benefit and I have already testified that in the area of administering puberty blockers and cross-sex hormones to individuals is not justified based upon the current level of evidence.

Q So that's a no; correct? You have not treated patients for gender dysphoria?

A As I stated, it would be unethical for me to engage in intervention like the administration of those hormones for -- that is not justified by a risk benefit analysis.

Q Dr. Hruz, you testified in the Brandt trial; isn't that right?

A That is correct.

Q And counsel there on cross-examination asked you whether you had ever treated a patient for gender dysphoria. Do you recall how you answered?

A The question was asked in relation to the -- to the treatment of gender dysphoria itself. And as I testified, my involvement and care of individuals that have a sex identity has been limited to those that have other underlying endocrine disorders.

Q Dr. Hruz, why don't we look at your testimony.

This is Tab A. This should appear on the screen for you momentarily. The first page do you see the caption of this case is Brandt v. Rutledge?

A I do.

Q This is a case in which you testified; correct?

A Correct.

Q We are going to go to Page 1317 of the transcript. And, Dr. Hruz, do you recognize this to be a transcript of your cross-examination testimony from that case?

A It appears to be so, yes.

Q And I direct your attention to Lines 21 through 23.
Do you see that?
A Yes, I do.
Q The question was asked and you have never treated a patient for gender dysphoria; correct?
Do you see that?
A I do see that, yes.
Q How did you answer?
A Just as I have today. Not for gender dysphoria.
Q And, Dr. Hruz, you have not diagnosed anyone with gender dysphoria; is that correct?
A That is correct. I'm a pediatric endocrinologist.
Q You can put that exhibit down.
And, in fact, Dr. Hruz, you have never been in the room with a transgender patient while a doctor was discussing treatment options for that patient with gender dysphoria. Isn't that right?
A I have not directly participated in the gender center at my institution, that is correct.
Q And you have never relied on the diagnostic criteria in the DSM to diagnosis a patient with gender dysphoria; isn't that right?
A Again, as a pediatric endocrinologist, that is not my task.
Q Dr. Hruz, one of your credentials is a certification in

healthcare ethics from the National Catholic Bioethic Center; isn't that right?

A That is correct.

Q And I take it you pursued that certification voluntarily?

A That is correct.

Q And the certification required you to complete a year-long study, didn't it?

A It did, indeed. And it was directly related to my involvement in this question of ethics that -- to have a more rigorous training in ethical principles to be able to more clearly think through the questions that were being posed to me, as I was serving in my leadership role, yes.

Q Thank you. And you wrote a paper as part of the certification program; isn't that right?

A That is correct.

Q And what was the name of that paper?

A Something to the effect of the use of cross -- it was the use of cross-sex hormones in gender dysphoria.

Q Dr. Hruz, you are familiar with the National Catholic Bioethic Center's brief statement on transgenderism, aren't you?

A I'm familiar they do have a statement, yes.

Q And you -- I'm sorry. Are you finished?

A The context is within prior litigation where similar to what you are doing right now, somebody put up a screen showing

a position statement and I have been able to read that in the past, and I'm happy to do that again for you.

Q Dr. Hruz, that statement includes the following line, does it not, quote: Gender transitioning consists on affirming a false identity and in many cases mutilating the body in support of that falsehood; is that correct?

A If that's what you are reading, it's similar to what I have heard read previously.

Q And that's consistent with your understanding of the NCB's position on transgenderism; isn't that correct?

A I would say that there is a very narrow portrayal of that. I think that my knowledge of that particular organization is much broader and much deeper, and so that's a very narrow characterization of what that particular organization to my knowledge, has put forward.

Q Thank you, Dr. Hruz.

But respectfully that was not my question. I read a line from the NCBC's brief statement on transgenderism, which you testified you are familiar with.

My question is: That is consistent with your understanding of NCBC's position on people who identify as transgender; is that correct?

A As I stated, their understanding is much more deep and comprehensive than you are portraying but components of that has been written by that institution, yes.

Q Thank you.

Dr. Hruz, you have also signed on to some friend of the court amicus brief, have you not?

A That is correct.

Q And one of cases in which you submitted an amicus brief is called Doe v. Boyertown; is that correct?

A That is correct.

Q You submitted the brief to the United States Supreme Court, did you not?

A That is correct.

Q And in that brief, you compared gender dysphoria to quote and anorexic's believe that he or she is overweight; isn't that right?

A I'm very happy to explain to you the basis for that statement as to its similarities and dissimilarities to the question of gender dysphoria, if you would like.

Q Your counsel can address that, if he would like.

My question was simply a yes or no.

In your brief, you compared gender dysphoria to quote an anorexic's belief that she or he is overweight. Isn't that right?

A That is written in that and that is correct.

Q In that brief, you wrote the following about gender-affirming care quote: Such treatments encourage a gender dysphoria youth like the sum in this case, to adhere to

his or her false belief that he or she is the opposite sex. These treatments would help the child to maintain his or her delusion but with less distress by other aspects requiring others in the child's life to go along with the charade.

Isn't that right?

A Again, I'm happy to share with you the basis scientifically for that statement regarding sexual identity and how it pertains to that satisfactory. But, as again I don't have it front of me right now, but assuming you are reading directly from that amicus brief, I can accept that is correct as far as it was portrayed.

Q Thank you. In that same brief, the Doe brief, you describe transitioning as quoted impersonation of the opposite sex. Isn't that right?

A Again, you're taking quotes out of context, without the proper portrayal of the discussion that was being made. And, again, I'm happy to share with you the scientific basis for which that is based upon.

Q I don't believe you answered my question, which was simply whether you used that language in the brief. I can repeat the question, if you would like.

A That language is used in the context of a much broader discussion that you are not reading.

Q So that language does appear in the brief; correct?

A Those words are in the brief, yes.

Q Dr. Hruz, you also submitted a brief in a case called Gloucester County v. Grimm; correct?
A Correct.
Q And this was another brief that you submitted to the United States Supreme Court; correct?
A Yes.
Q And you did so voluntarily; correct?
A Yes.
Q No one forced you to write your name on that brief?
A No.
Q That brief ended with the following language quote: Conditioning children into believing that a lifetime of impersonating someone of the opposite sex achievable only through chemical and surgical intervention is a form of child abuse; is that correct?
A That is contained in that document, yes.
Q Dr. Hruz, you are aware that some of the Plaintiffs in this case are parents of transgender children, are you not?
A Yes.
Q You understand that these are parents who have sought out gender-affirming care for their children; correct?
A That is my understanding.
Q According to what you told the United States Supreme Court in your brief in the Gloucester County case, these parents were engaged in a form of child abuse; isn't that

right?
A I believe that you are stating this out of context. There are different circumstances where one uses different languages for different purposes. And, again, I'm happy to explain in great detail the basis for that statement.
Q You didn't answer my question.
My question is according to what you told the United States Supreme Court in the Gloucester County case, you think these parents are engaged in a form of child abuse; isn't that right?
A So I would say that my understanding, again, is based upon assessments of the relative risk versus benefit. Now in that statement, it doesn't convey what the parents were being told by the providing physicians and not accurately presenting the deficiency of the scientific evidence of the relative risks and benefits. And, therefore, there is much more and actually since that was first penned, there has been many developments that have been made in that discussion about whether this is a prudent course of action.
Q You obviously felt that using the term child abuse was appropriate to put in a brief to the United States Supreme Court; isn't that right?
A To the extent that I signed my name to that document, that can be accepted. I -- again, many authors of that and -- who choose to use different language. The general principle

of the fact that when one goes through gender-affirming medical interventions that one does nothing to change the biological sex of that individual is a factually-correct scientific statement.

Q Dr. Hruz, this is not the first case in which you have testified as an expert witness; isn't that right?

A That is correct.

Q You've testified as an expert witness in more than ten cases; am I correct in that understanding?

A That is correct.

Q We mentioned earlier today you testified in the Brandt versus Rutledge case; correct?

A Correct.

Q That was a case in Arkansas. Do I have it right?

A They start to blend together after a while, but yes.

Q The district judge in that case ultimately did not credit your opinions concerning your research on the benefits of gender-affirming care for adolescents; is that right?

A Again, my role as an expert witness is to present the scientific evidence, and it is to others to make conclusions about how they're going to use that information.

Q So in other words, the judge did not credit the testimony that you offered in that case; isn't that right?

A I don't know that that's exactly what's said. I haven't read the actual decision.

Q Okay. You also testified in a case called Kadel versus Falwell in North Carolina. Isn't that right?
A That is correct.
Q And you submitted a written expert report in that case. Isn't that right?
A That is correct.
Q Now in that report, you opined that the DSM is compiled through quote an often controversial consensus-seeking not scientific evidence-seeking political voting process; correct?
A That is correct.
Q Now in that report, you also criticized the Plaintiffs' experts for failing to properly discuss and disclose what you described as alternative theories/hypothesis or quote the rapid and merely exponential increase of transgender cases; isn't that right?
A Again, addressing the question of changing demographics in what we do and do not know about that, that's correct.
Q Okay. And you opined in that case that one of the alternative theories/hypothesis was social contagion; is that right?
A That hypothesis that remains in discussion within various scientific communities.
Q And you opined that social contagion was being driven by, among other things, YouTube influencers; isn't that right?
A Again, as a physician scientist, I impose many different

hypothesis that require extensive and rigorous scientific investigation and that is one of them.

Q In that report, you also allege that quote social media influencers are purportedly training patients to fabricate symptoms to gain rapid access to transition interventions; is that right?

A It is correct that many have put forward that as a hypothesis to the effect that we are seeing.

Q And in that report, you suggested that quote the gender transition industry is engaged in a form of hazardous consumer fraud, resulting in harm to many venerable patients; isn't that right?

A Again, in the context of what is being offered to these individuals with the degree of scientific evidence regarding relative risks and benefits and other factors that one can hypothesize, are motivating that approach to care.

Q In other words, yes, you did offer the suggestion that the quote gender transition industry is engaged in what you describe as a hazardous consumer fraud. Am I mistaken in that?

A It's based upon my knowledge of the individuals that actually code for diagnosis to get insurance coverages that are not accurate as far as what's going on in a particular individual. And I could go on and on about the other elements that led to that being proposed as a hypothesis. Correct.

Q So you believe that the quote the gender transition industry at large is engaged in quote hazardous consumer fraud. Am I mistaken in that?

A What I conveyed in that declaration that's a hypothesis based upon potential etiologies. So one of the questions that I wrestled with and I continue to is what is driving the current medical establishment within the United States to jettison the normal approach to develop effective therapies by careful evaluation of risk versus benefit. And because it's completely at odds with the way we treat other conditions and trying to come to some understanding about what might be driving that to be accepted based upon the quality of the evidence that is present.

Q Dr. Hruz, in that same report that you offered in the Kadel case, you also characterized people in what you described as the transgender industry as quote cancel culture political activists; isn't that right?

A So my experience is that those that raised valid scientific questions and concerns related to the way that medicine is being practiced and science is being conducted, have most certainly experienced a response that is quite atypical from what we do in other areas of scientific investigation and medicine. A succinct way to describe that is to try to silence these individuals. So that statement is reflecting that reality.

Q So the term used is, in fact, cancel political activist?
A Again, there are many hypothesis that can be raised as to why one is viewing this particular condition in a way that is quite contrary that we -- to the way that we approach medical practice in all other areas.
Q The district judge in the Kadel case determined that you were not qualified to offer expert opinions on the diagnosis of gender dysphoria, the DSM, gender dysphoria potential causes, the likelihood that a patient will desist or the efficacy of mental health treatment; isn't that right?
A In that particular declaration, I was asked to opine on much broader topics than I am in this case here and I have not made any attempt of declaration within that regard in this case here.
Q Is there any inaccuracy in what I just said, that the district judge found that you were not qualified to address the topics I just described?
A I would say your line of questioning is not reflective of the entire document and the purpose of the document and the reasons those statements were made. But the content, as you've read them, is accurately portraying what was in that declaration.
Q Dr. Hruz, I want to talk a bit about your practice as a endocrinologist. In your practice, you do prescribe GnRH agonist, otherwise known as puberty blockers, to children.

Isn't that right?
A I do, indeed, for those that have severe precocious puberty.
Q And, in fact, you have prescribed puberty blockers for patients as young as three years old; is that right?
A That is correct.
Q You prescribe puberty blockers for patients, despite the fact this medication has risks, just like any other medical intervention; isn't that right?
A As I have stated earlier, it is a different condition with a different risk benefit analysis and, therefore, the decision to treat or not to treat is based upon an entirely different condition.
Q In the report that you submitted in this case in Paragraph 43, you point out that quote puberty blockers have recently been recognized to carry a risk of increased brain pressure that can adversely affect vision and cause severe headaches; isn't that right?
A You are referring to the literature on the condition known as Pseudotumor cerebri that was issued by the FDA in patients that have been exposed to that medication, correct.
Q To be clear, puberty blockers carry that risk regardless of whether they are prescribed to treat puberty or gender dysphoria; isn't that right?
A That is correct.

Q In your practice, you also prescribe testosterone to adolescent patients. Isn't that right?
A That is correct.
Q And you prescribe estrogen to adolescent patient as well; correct?
A Let me clarify. I administer testosterone to males and estrogen to females.
Q What you mean by that are to patients assigned male at birth and patients assigned female at birth; isn't that right?
A I would go further than that. Sex is not assigned at birth. It's recognized by objective criteria.
Q And in your practice as a endocrinologist, you sometimes prescribe medication off label; isn't that right?
A Again, it is common in medicine in general in pediatrics in particular to prescribe medicines off label always with proper assessment of relative risks versus relative benefit.
Q I believe you just said just to be clear prescribing medication off label is very common in the area of pediatrics, isn't it?
A It is, with careful assessment of the relative risks versus relative benefits.
Q And as a doctor, when you are deciding whether to recommend a particular medication to a patient, you consider both the risks and the benefits; isn't that right?
A That's correct.

Q And as a doctor, you inform your minor patients and their families of those risks and benefits; isn't that right?
A That is correct.
Q And you obtain informed consent; isn't that right?
A We have long sessions about what informed consent is and how that can be given, given the level of evidence, but, yes, it is a standard practice in medicine to explain to a patient or a parent the relative risks and benefits in obtaining consent for a particular intervention.
Q And when you prescribe puberty blockers for a three-year-old patient, I take it you also obtain the informed consent; isn't that right?
A In all medicines that I give, I have that discussion, yes.
Q And when you prescribe estrogen or testosterone to your adolescent patients, you also obtain informed consent; isn't that right?
A As I stated in all areas of medicine, as a standard practice, we will inform patients of relative risks and benefits and get their consent.
Q Dr. Hruz, you would agree that delaying puberty blockers to delay puberty for too long can lead to adverse affects, wouldn't you?
A Most certainly. That is one of the concerns with suppressing normally-timed puberty, particularly in the

affects in mental health.
Q So as a endocrinologist, you would not advise that a patient take puberty blockers to the age of 18, would you?
A I would not. It would be equivalent to a patient that I failed to diagnosis and they had the affect from that. That is correct.
Q Dr. Hruz, you are aware that the American Medical Association supports providing gender-affirming care, including hormone therapy, to adolescents with gender dysphoria, aren't you?
A Well, as I stated many times, that there are certain members of each of the organizations that have put forward these endorsements that do not necessarily include all of the members of that organization. So I would say there is a committee subset of that organization that has put forward those recommendations.
Q They have put forward those recommendations on behalf of the association itself; isn't that right?
A I'm sorry. I didn't hear.
Q They have put forward those recommendations on behalf of the association itself. Is that not correct?
A Well, again, I would say that to my knowledge these organizations have never brought it to the attention of the entire membership to allow them to weigh in to that question.
Q Dr. Hruz, are you aware that over 20 medical

associations, including the American Medical Association and the America Academy of Pediatric Endocrinologists submitted an amicus brief in this case?

A I wasn't aware of the number of organizations.

Q Are you aware that certain medical organizations filed amicus briefs in this case?

A I'm aware of many medical associations similar to the ones we just discussed that have put forward those recommendations.

Q And just to be clear, you think that those associations that have put forward these recommendations supporting gender-affirming care for adolescent patients, you believe they are misled or they are incorrect in putting forward those recommendations; isn't that right?

A Well, since I was not on the committee when decisions were made, I can't state what was discussed at those points in time. I can only state that my opinions in this area are in alignment with the various scientific reviews. Those position statements that have been made have never been -- risen to the same degree of examination of the scientific literature, and I would say they are based upon the lower quality expert opinion and -- as opposed to systematic reviews that we have.

Q In other words, your position is that these major medical associations, including the AMA and the AAP are wrong in how they are reading the medical literature; isn't that right?

A That is not what I've said. Again, I will reiterate that we need to talk about the individuals that put forward these recommendations or these position statements. I would say that by reading the documents and looking at what evidence they're citing, they have not acknowledged the serious limitations and weaknesses of the studies and have made conclusions that fall short of the standards we see in other areas of medicine.

Q At the outset of your testimony today, Dr. Hruz, I believe you mentioned that you first began studying gender dysphoria about a decade ago; isn't that right?

A That is correct.

Q That was when a colleague approached you about opening a gender clinic at Washington University. Do I have that right?

A That is correct.

Q Do you still work at Washington University?

A I do.

Q And Washington University did, in fact, open a gender clinic, did it not?

A They did, indeed.

Q It's known as the Transgender Center at Washington University. Do I have that right?

A I believe so.

Q The Transgender Center at Washington University follows the WPATH Guidelines, doesn't it?

A So they claim to do so, yes.
Q Okay. And when pediatric patients are referred to the Transgender Center at Washington University for the evaluation and treatment of gender dysphoria, they're cared for by a interdisciplinary team of providers that include a psychologist and a pediatric endocrinologist; isn't that right?
A Those individuals, to my knowledge, are part of that center.
Q I take it that you disagree with the approach to transgender medicine as practiced at the Transgender Center.
A I have made it very clear to my colleagues, including those that are participating in that center, my concerns that I have expressed here in this case about the quality of evidence that we need for higher quality of evidence and, in fact, have advocated for the conduct of research that needs to be done, particularly since I work at one of the most prestigious research institutions in the country.
Q We've talked a lot today about Randomized Controlled Trials or RTCs. Now in the context of a trial where some subjects are given hormone therapy and some subjects are not, that could not possibly be blind; correct?
A I would say that that is correct. And I would also say that, again, I didn't mention this earlier that blinding is not an absolute requirement for high quality studies with a

Randomized Controlled Trial and there are many other examples that are behind the study.

Q And when it comes to designing Randomized Controlled Trials, before conducting this, an IRB would have to approve the study; correct?

A If it's done properly, that is correct.

Q And you would need patients who are actually willing to sign up for this study; right?

A You would need to have patients that were properly presented with the scientific question that's being investigated in that trial, acknowledging the deficiency of the knowledge that is present for them to be able to adequately consent to participating in that trial. So it would require one to share with them the scientific hypotheses the questions that's going to be addressed and why it's important questions to be addressed in that manner.

Q So in order to conduct one of these studies, you would need patients who are willing to participate in this study; correct?

A It's difficult or impossible to do a study if you don't have study subjects.

Q And to be perfectly clear, it would be virtually impossible to conduct a placebo controlled trial where one group of subjects received gender-affirming medical intervention and the control group did not. Isn't that right?

A I think I have already testified that that is not the way the trial would be conducted.

Q In other words, you agree with me it's virtually impossible to construct a placebo controlled trial where one group of subjects receive a gender-affirming medical intervention and the controlled group did not; isn't that correct?

A As I stated previously, one needs to have interventions identical in both treatment and control groups except for the independent variable.

A very simple example of that could be both groups get affirmative care, one getting psychotherapy in a very rigorous way and one receiving a standard-of-care approach that does not involve that.

Again, you probably would get patients that would sign up for that. Again, that's hypothetical. There are many other ways and there is actually existing scientific data that actually would support that trial being conducted, including, for example, the Costa Study in 2015 where they looked at puberty blockers with -- both groups had psychological care. One with puberty blockers; one without. That study showed that there was benefit in both of the control groups. Limitations in that study, including sample size allowed one not to look at significance at the end of the study.

Again, there are many different ways that this can be

conceived in a way that we can actually get answers to the casual relationship between intervention and response to fill in these, very notable gaps. And one at least initially would need to be very focused in the hypothesis, be very clear in the intervention, and I would say initially very short-term in the follow up to assure the safety of these individuals.

It's very possible. IRB's do this all the time. That when one is engaged in a Randomized Controlled Trial that there is an interim analysis to see if there is potential harm that's being done during that study.

Again, there are many, many, aspects of this that can be done in an ethical way and I would add in a feasible way, if one does not portray this in the erroneous way the Plaintiffs' experts have presented this scientific question.

Q Dr. Hruz, I want to go back to this hypothetical you posed a minute ago where there are two groups, they both receive, I think what you described as standard care and then one of the groups received psychotherapy and the other did not.

Am I understanding that hypothetical correctly?

A The hypothetical is that you have a group that receives the intervention immediately that was conducted with a delay of a certain period of time before these patients were being offered that intervention.

Now that was not a randomized trial and there were many

limitations in the conclusions that were reached both on sample size and its non-randomized nature, but it provides a basis for which one can rationally design an experiment that addresses the fundamentally important question that has not been investigated in this area, that allows us, one, to begin to get these answers of risk relative to benefit.

So, again, in every -- hypotheticals are going to include many different variables, not all of which can be discussed very succinctly, and there would be many of that particular intervention that would be in other aspects that would be necessary to make sure that it was done in a safe and ethical manner.

Q Dr. Hruz, you didn't answer my question. My question was about the hypothetical you posed. Two groups received standard care. One received psychotherapy. The other did not. Do you recall that?

A I recall the question and my answer reflected the fact that in that study to make that statement about standard of care, is I think somewhat misleading.

Q You say standard of care. Would that refer to hormone therapy treatment of gender dysphoria?

A The reason I disagree with that as being the standard of care, at the time that that study was done, there was stipulation about psychological intervention in psychological health. That was what was being addressed for these -- again,

many of these studies being done currently are not using the model of, for example, you know, that disallow patients that have been diagnosed other psychiatric morbidities.

Q Dr. Hruz, I'm going to try this one more time. In this hypothetical with two groups, they both received standard care and one group received psychotherapy and the other does not, in that study the thing you would be studying is the efficacy of psychotherapy on top of the standard of care; correct?

A I would -- again, you are using the term standard of care and I'm trying to point out for the Court that that portrayal is not accurately reflecting what is being done in that situation. I would acknowledge that the comparator would be psychotherapy and puberty blocking. So the independent variable would be whether one received puberty blocking or not and they were identical in all aspects of that intervention.

Q Dr. Hruz, I want to shift gears a bit.

In your written report in this case, you walked through about 18 studies that describe the beneficial effects of gender-affirming care. I understand you disagree with how some of the studies were conducted, but are you familiar with the part of your report that I'm referring to?

A Yes, I am.

Q Can you point to any of those studies that is not published -- that is not peer reviewed?

A My understanding is that the ones that I included in

there were peer reviewed. If I'm recalling correctly the papers that I'm referring to were published in peer-reviewed journals.

Q One of those studies you wrote about is the Chen Study from 2023, correct?

A That is correct.

Q Published in the New England Journal of Medicine; correct?

A Correct.

Q You would agree that the New England Journal of Medicine is a well-respected medical journal?

A Yes, I do.

Q One of the other studies you looked at was published in Asset Child and Adolescent Health.

Do you recall that?

A Again, I'm trying to find where the -- you know, references are all included in my declarations.

Q That would be in 2022 published in Asset Child and Adolescent Health; correct.

A Correct.

Q You would agree that is a well-respected medical journal, wouldn't you?

A Again, all journals have varying levels of hierarchy as far as their impact, but it is a respected journal, yes.

Q And one of the other studies you looked at was the Turban

and Colleague Study from 2022 that was published in PLOS ONE P-L-O-S O-N-E; correct?

A That is correct.

Q You would agree that's a well-respected medical journal, wouldn't you?

A It's a journal that is very-widely cited, yes.

Q In fact, you have served as reviewer for that journal, have you not?

A Correct. And I would add in all of these journals that you are mentioning, not every single paper that is published in this journal, in these journals is of the same quality. It's only as good at the peer review that is done and the way the study is -- again, it's only as good as the peer reviewers and there is actually much in the literature of studies that have be published including top-tier journals where they have analyzed the way the studies were done and made very serious observations about misuse of statistical methods, conclusions that were supported by the documents. So just being published in high-quality journal doesn't guarantee the veracity. Yes in the higher-tier journals, there is more rigor, usually that is present in the review.

Q Thank you, Dr. Hruz.

In your report that you submitted in this case, you described PLOS ONE as a leading science journal; correct?

A Correct. Again, acknowledging not every paper published

in a journal is of the same quality or reliability.
Q Dr. Hruz, you testified that you have been studying gender dysphoria for about a decade; isn't that right?
A As I stated, yes, a little bit over a decade, now.
Q You have written various pieces on gender dysphoria; correct?
A That is correct.
Q To date, you have not published a peer-reviewed article on gender dysphoria in a scientific journal; isn't that right?
A As I mentioned previously, I have a paper that was published in an ethics journal. It has to do with the nature of papers that I've written, which are not of the high quality science that needs to be done as we're talking about here.
Q That was an ethics journal you said?
A Correct.
Q What was the name of that journal?
A Elsevier.
Q That's not a medical journal; correct?
A As I said, it an ethics journal. In fact, it's the longest standing publishing ethics journal in the United States.
Q Just to be clear, you have not published any other peer-reviewed articles on gender dysphoria; correct?
A That gets to the question of the papers that I have published. All of them have undergone review. The degree of

review as far as whether they were sent out to external reviewers versus editorial review depends upon the journal and their polices. I know that in every single case that I have published, that I have received reviews that have required revision of the paper. Many times, the editors themselves are the peers. So in that respect, they are peer reviewed. But there is a difference in a paper that I'm asked to write for a particular purpose versus a paper that I submit to the journal for consideration of publication.

Q I understand that some of your papers have received editorial review. My question is this: You have not published a peer-reviewed article on gender dysphoria in a scientific journal; isn't that right?

A Well, again, as you defined --

Q Setting aside the ethics journal.

A So my publications are very readily apparent in my CV and I have listed them for the Court that they are able to look at relative to the literature.

Q In your report, Dr. Hruz, you purport to describe international responses from certain countries; isn't that right?

A That is correct.

Q You are not an expert on European health care law or policies; correct?

A I'm referring to the scientific analysis through

systematic review from those countries.
Q Okay. In your report, you address four countries: Finland, Sweden, the United Kingdom and Norway.
Does that sound right?
A That's correct.
Q To your knowledge, has any of those countries completely prohibited hormone therapy for the treatment of gender dysphoria through the age of 18?
A My understanding is because the movement in those countries are to use the normal mechanisms that are used within the medical establishments, it's not been necessary to have legislative effort because the proper safeguards are now occurring in those countries, so they have actually been -- they have psychology as stated previously, they are -- some to varying degrees -- requiring versus recommending that any type of hormone as intervention be done in the setting of a experimental trial.
Q Let me put it this way: In any of those countries, is hormone therapy completely unavailable to adolescent patients through the age of 18?
A As I said before, because the medical establishment is now providing proper safeguards, it's not necessary to go to that extent in those countries, to my knowledge.
MR. MCINTYRE: No further questions at this time. Thank you.

THE COURT: Any redirect?

MR. STRAWBRIDGE: Not unless Your Honor has any questions.

THE COURT: I don't think I do.

Thank you, doctor.

Your next witness.

MR. HARRIS: I'd like to start with our next witness

THE COURT: Sure.

MR. HARRIS: The Defendants call Dr. James Cantor.

COURTROOM DEPUTY: Please raise your right hand.

JAMES CANTOR,

a witness herein, having been first duly sworn, was examined and testified as follows:

THE WITNESS: You may be seated.

THE COURT: Counsel, before we get started, I think what we'll do is have the direct and then we'll take a break before we move to cross-examination.

MR. HARRIS: I'm expecting the witness to be 20 to 30 minutes. It should be relatively brief.

COURTROOM DEPUTY: Sir, can you please state and spell your first and last name for the record.

THE WITNESS: James J-a-m-e-s, Cantor, Cantor.

DIRECT EXAMINATION

BY MR. HARRIS:

Q Good morning, Dr. Cantor. Please describe briefly your

educational history.
A I received my undergraduate degree at Rensselaer Polytechnic Institute. I majored -- concentrated in mathematics and physics.
I obtained my Masters degree in Psychology from Boston University and my doctoral degree in Clinical Psychology at McGill University with a dissertation in the biological basis of sex in the brain.
Q And please briefly describe your work history.
A I worked first as a post-doctoral fellow, again, studying in the role of the brain, especially atypical sexual behaviors at what is now called the Center for Addiction and Mental Health in Canada. I continued there as a research scientist and clinician. Then I became the head of research and of the mental health program.
Q Have you published peer-reviewed research?
A Yes, I have.
Q And have you served as a reviewer or editor of research studies regarding mental health?
A Yes. Quite a few. I sit on several editorial boards of various journals specializing in sex research and I served as Editor in Chief of the Journal of Sexual Abuse.
Q In your professional capacity, have you studied and encountered issues regarding the diagnosis and treatment of gender dysphoria?

A Yes, quite often.
Q And are you familiar with how to evaluate published studies regarding how an intervention may affect mental health?
A Yes, I have. That's the primary basis of a great deal of my reviewing research as a peer scientist, as an editor of the journal, as a member of other boards and as a member of the editorial team and review materials on various granting agencies. I was -- especially because of my background in mathematics, I was in charge of helping people evaluate studies, according to their research designs.
Q Dr. Cantor, can you please give us an overview of some of the different types of scientific studies, maybe beginning with some of the ones that you would find to be more reliable or valid.
A Starting with the ones that are most reliable would actually be the reviews of lower types of research. Again referring to the Pyramid of Evidence that we've been talking about, the highest, the most reliable type are indeed the systematic reviews of research. The primary purpose of systematic reviews is that they do their best to exclude opportunities for bias. Those major opportunities that systematic reviews exclude are, of course, cherrypicking, just picking the study that seem to favor one side while ignoring the study that favors the other.

The other primary source of bias is using an unlevel playing field, holding some studies to a higher bar than other studies.

In a systematic review, because it's entirely transparent listing exactly which studies it included, exactly which studies it did not include and explicitly indicating why, there is much less room for the cherrypicking of studies.

I also make them publicly available, typically registering them in publicly-available databases with criteria that they're used for evaluating the studies within them. Again, to make sure that each of the studies are evaluated on an even playing field.

Beneath the systematic reviews, would be what we call the experimental studies. These are the proper experiments. The differences between a experimental treatment and a non-experimental treatment is that the experimental treatments have past the experimental bar. They have been tested with the people in them, either in a experimental group receiving the treatment or in some sort of control group, receiving either no treatment or more typically some other kind of treatment that's used as a comparison. So once a treatment has gone through the experimental process, that's when a treatment can then be called established.

Beneath that would be the observational studies. Those are the studies where we are not actually doing anything

active with the people in them. We're just looking for patterns. People with one kind of feature also have another kind of feature. That tends to tell us which clusters goes with which clusters and that's usually what we use in order to decide what might be potential treatment to then experiment with.

Q In what -- tell us about what weight you give a survey or cross-sectional studies.

A Surveys and cross-sectional studies really don't fall on the Pyramid of Evidence at all. They are not sufficiently systematic, especially surveys that are conducted on the internet. Anybody who wants to answer the questionnaire can answer the questionnaire. It can give us a pretty good idea of where we should then go to with more systematic research, but it, itself, doesn't represent either experiment or systematic evidence of any sort.

Q Can you tell us is the Pyramid of Evidence well accepted in your field?

A Yes, it's quite universal.

Q Can you tell us what the pyramid says about how lower or very low-quality evidence should be used.

A It depends on the context. The decision for what to use as evidence for the treatments also as was said earlier is assessment of the risk-to-benefit ratio. You can't decide whether -- which of the alternatives to use unless you are

assessing both.

The third variable that hasn't been mentioned yet is that both of those have to be assessed in the context of their uncertainty.

There are some diagnoses which can be diagnosed with great accuracy. Especially as has been discussed so far today, the medical disorders. When we are talking about tumors. When we are talking about endocrine disorders. We can give somebody a blood test and we can tell with very strong accuracy and very great certainty whether the person has it or not.

That's very different from what really gender identity and gender dysphoria should be getting compared to, which are the mental health disorders which are diagnosed with very low certainty.

In mental health, we don't have an objective physical test to tell us if our diagnosis is correct or not. In those, it is often very up to debate and we don't have an objective way to tell when somebody is in that threshold or not.

Q Do you have an opinion about whether a systematic review or clinical experience heavily weighing those, which would you follow as an expert in your field?

A Always necessarily the systematic review.

Q And are systematic reviews in your field sometimes used to evaluate or reconsider or modify existing conventional

wisdom about treatment?

A Regularly. In fact, that's their purpose. It is exactly because they're systematic and removing opportunities for bias is what makes them superior to just clinical experience. In fact, clinical experience doesn't even make it into the Pyramid of Evidence. We would usually start it and the low rung of the Pyramid is expert opinion, which is even above clinical experience.

Q Turning to some of the more specific issues we've seen, you have been in the courtroom today; right?

A Yes.

Q And you heard some of the Plaintiffs' experts opine that medical gender transitions are effective and, indeed, necessary to improve mental health for minors suffering from gender dysphoria.

Do you, as a general matter, believe there is a sound basis in evidence to show transitioning medications improve mental health?

A I would have to answer differently for the word effective and for the word necessary.

Q All right.

A Necessary means that we run the experiments on the experimental level in order to know what will happen and what will not happen. No such research has been done. We cannot know what's necessary.

For effective, there have been 13 studies that have tried to determine whether the -- whether gender transition is effective and they have been one after another inconclusive and ambiguous. The changes that have been detected, nobody can tell if those changes are due to any of the medical treatments that the person was getting or to the psychotherapy that they were getting at the same time or were, as I also listed all 15 and summarized all 15 of the studies in my report, four the studies show that there were no changes. No improvements at all. Several of the studies also indicated that on certain variables, people continue to get worse.

Q And specifically on the question -- and I know they are distinct questions -- but completed suicide and suicidality.

Can you explain to the Court the state of the evidence on whether transitioning medications are effective at preventing suicide or suicidality and maybe explain the difference between those.

A First for the difference between the two, it's unfortunate, again as a psychologist, to watch so much of the public misuse each of those terms really for the rhetorical purposes, rather than for figuring out what's going on and helping these kids.

Suicide is a relatively rare phenomenon. It's the one that gets everybody's attention but as I said rare. It's usually impulsive. It's usually a surprise to the person's

environment, and it's -- by far, it's most common in men in middle age.

Suicidality are the suicidal ideations. Several reports of suicide attempts. These are indicators that a person is in great distress, but it actually very, very rarely translates into actual suicide. People have the idea understandable but it's not true that suicidality is just a preliminary form of actual suicide but it's not.

Suicidality is much more common in youth. Much more common in biological females and much more likely to be repetitive. It simply represents a different phenomenon of the actual, as I said, impulsive intent to die. And because it's a different phenomenon, we need different ways to address it. One is not just an earlier form of the other.

Q And what -- on -- and then taking those in turn, can you offer your opinion about the state of the evidence on whether gender-affirming medications have any meaningful impact on suicide or suicidality?

A The studies repeatedly find that there is either no effect, sometimes there have been some reports that maybe it's going down and then there have been other studies that found people reporting even greater rates of suicidality.

Q Are you familiar with the Baker Study?

A Yes, I am. That was the systematic review that WPATH conducted before producing its most recent version of its

edits.
Q Do you recall what that concluded about the affects of hormonal therapy on death by suicide?
A It says it was inconclusive.
Q I think it would be helpful for the Court, just a couple, to hear your specific analysis of the quality of a few of the studies that have been pretty heavily cited here.
We have the binders, if it's helpful but -- or if you don't need them no need, but are you familiar with the Turban 2022 Study?
A I'm roughly familiar with his set of studies. He published a bunch of them, all based on the same survey and it's easy for me to mix up which.
Q It's in the binder, if you need to take a look.
Can you offer your views of the validity of those?
A Roughly it was a surveillance where people were simply asked do they ever feel suicidal in their lives. And so, he reported that the people who said that they had received gender-affirming care of some sort were less likely to report that they had felt suicidal. But really all of that is a side effect of essentially the process that people have to go through in order to get gender-affirming care in the first place. Many of the existing standards require mental health screening, that they be screened, and the worse of mental illnesses be ruled out first.

So if you just take a general survey, you're comparing people who made it through that screening versus people who did not. So even if there is absolutely zero effect, you would still find on average the people who got the care or the people who made it through the screenings, so the people with the poorest mental health, didn't get it. There was no -- we can't find from that, conclude that the treatment had the effect. We're just seeing the effect of not permitting the people in the worse mental health to get that treatment in the first place.

Q And tell us a little more, again, about why surveys are uniquely unreliable. I don't want to put words in your mouth but I think you said something to that affect.

A I would hesitate to use the word unreliable. It's that they can tell us some stuff and not tell us other stuff, especially in a highly-politically fraught discussion. People are using survey data to mean things that they really don't mean.

As I say, at best, it can tell us what gets clustered with what. People with one characteristic are more likely to have another characteristic. That's all they can tell us. Or people in one group report one way on a survey. People in another group report another way in a survey. It gives us what we call correlation evidence.

So, of course, if we're talking about some conclusions

where that's all we need to know, they're perfectly fine. If we're going to use them because we now think some otherwise dangerous treatment is going the cause certain affects, they're not reliable for that kind of conclusion.

Q I'm going to read to you -- are you familiar with the Chen Study?

A Yes, I am.

Q Okay. So reading Paragraph 54 of Dr. McNamara's report says in a 2023 study by Chen et al, the investigators found that appearance congruence achieved by hormone therapy was strongly associated with improvement in various measures of mental health and psychosocial functioning.

Do you -- what weight -- I guess do you agree with that description of Chen? And what, if any, weight would you give the Chen Study in the Pyramid?

A The placement of the Study in the Pyramid depends on how the Study was designed. But it doesn't exist in a perfect study.

The conduct of a study can be done improperly. The biggest problem with the Chen Study is that 40 percent of the people in it dropped out. So, again, if somebody starts a treatment, finds it's not helping them and leaves it, well, then we are only looking at the people who stayed in and their scores after the study are going to look higher because the people who were doing poorly dropped out.

So once again, we're in a situation where it's just kind of a statistical illusion that there was improvement, even when there was no change. When we are talking that kind of attrition, we can't make the conclusion that there was any affect of the benefit.

Q Do you think a surveillance with that design could establish --

A Are we talking about the Chen Study?

Q Do you think a study of that design could show that hormone therapy causes improvements in mental health or psychosocial function?

A No. The Chen Study was what we call a cohort study which is to take one group of people, they all received the treatment, and in that particular kind of cohort study, they're compared -- the scores before the treatment are compared with the scores after the treatment. And as I said, 40 percent of the people dropped out in between. You can't get a reliable result from it.

Q And I just want to clear something up to make sure there's no misperception at all.

Did you opine in your report or elsewhere that Chen found that transitioning drugs were causing people to commit suicide?

A No. Apparently they knew better in the document itself. They said that such a conclusion could not be made.

Q Okay. Last one of these, the Kuper, K-u-p-e-r, 2020 Study, are you familiar with that?

A Yes.

Q Can you tell us your assessment of where that falls in the hierarchy?

A That was also a cohort study. In fact, the cohort studies are the highest level of study that's ever been attempted so far with treatments of gender dysphoria. There have been exactly 13 of them, and my report lists and summarizes the conduct of each of those.

The Kuper Study used I think it was nine different mental health measures. Measures of depression, measures of anxiety measures of suicidality and so.

What they found was that on one of those nine measures, there was some improvement. On three of the measures of suicidality, they found that people were more likely to report feeling suicidal after treatment. And on the -- I forgot -- of the five other variables in between, there was no change at all. And then the Study had the other, you know, I want say ubiquitous problems. 20 to 25 percent of the people dropping out entirely.

Q We don't need to cover them in exhaustive detail because they are in the record, but can you talk a little bit about some of the European studies. I know there was criticism earlier today which you have heard of the study in Sweden.

Can you address what happened in that study and how you assessed its validity or evidentiary weight?

A I assume you mean the systematic --

Q The 2023 -- yes.

A Ludvigsson. I have to make a joke. Every time I try to pronounce it, I think of Betty White in the Golden Girls. It was a proper systematic review that ran itself the way that, you know, the medical establishment and the clinical establishment runs systematic reviews. They selected the questions that they wanted answered. They established the criteria for which studies were going to be in and out of its review and they made available the criteria by which they were going to evaluate the studies.

The government itself just, you know, as ubiquitous. I have lived in Canada myself for 30 years. We have a health care system very similar to Europe. Each of those systems ran the systematic review of the existing -- evidence as I cited in 2021, and it was only just a few months ago now that that same Study was republished in English.

Their results came out with exactly the same results as the English systematic review did, which came out with exactly the same results that the Finnish Systematic Review did, which came out with exactly the same results that essentially I describe in my report reviewing what are essentially the same body of studies.

I should add because they searched for the existing studies in 2021, there were only 11 cohorts studies. There are now 15. So my report now covers the two extra studied that have been published since then.

Q Did you -- you said you reviewed a lot of studies. In reviewing the Sweden Study, did you find any concern with the dates of when the survey was conducted? Did you find anything inappropriate about anything like that? I guess you heard the critique earlier today.

A I did hear the critique. Whether it's appropriate or not would depend on if anything came out in the past two years which makes any difference. But two recent studies reported exactly the same thing as the 11 studies beforehand.

Q So do you agree -- we've heard words like consensus and standards of care about the WPATH Standards. Do you think that's an accurate assessment of that, in light of what we've been talking about?

A No. Not at all. In fact, it is been pointed out over and over again by many of the professional associations themselves that they were unable to find a consensus that was explicitly by the UK review. The American Psychological Association when they wrote their policies found the same thing. They were unable to identify a consensus.

Q And just to be clear as -- as someone evaluating the evidence about mental health -- so a professional in your

field would consider these European things, these European studies just like they would consider Turban and Chen and Kuper; is that correct.

A The systematic reviews above?

Q Of course, yes.

A That's the point of the systematic review.

Q Sure. But the studies we've discussed which you heard my friend talk about with Dr. Shumer did a lot of the discussion, all of those are meaningful contributions to the scientific body of evidence.

A Oh, because they were produced by the health care systems of those countries, they are held at the same weight, if not higher actually, than a peer reviewed journal would be.

Again, this is one of the distinctions between what people are accustomed to in the U.S. where medicine is run by medical professional associations as opposed to really just about the rest of the world, where medicine is run by the medical industries of the national public health care system.

Q Would you have any reason to discount a study if it was issued by the US CDC or STEM, I think a mental health agency? Would you discount those?

A Again because, the US system works a little bit different I would love to see what's done. You know, habitually scratched the surface, but it would be perfectly appropriate to give those documents the same kind of weight as the

document coming from NIH.

Q Okay. Just a couple of more things.

Can you tell me historically about the demographics of the individuals who suffered from or sought treatment for gender dysphoria.

A Sure. An upshot is that it is more than just demographics. This isn't just a shift from urban to rural or one socioeconomic class to another.

The study of gender dysphoria goes back more than a century. And what's been shown and has been true up until the social media age actually is that there are two completely independent unrelated phenomenon that can lead a person to feel gender dysphoria.

People with childhood onset gender dysphoria are not experiencing the same thing as adult-onset gender dysphoria. They are both feeling dysphoric. They both feel like they could be living as the other sex, but for completely unrelated reasons. That's metaphoric and I'll offer to explain it.

Somebody comes in, doc, I have a headache. Okay. But we don't then diagnose headache disorder and send you to our, you know, headache pill factory. We figure out what's causing the headache. A head injury is not the same as a tumor. It's not the same as an aneurysm. It's not the same as a migraine. We find out what the cause is and we treat the cause, even though the person is describing the same symptom.

For childhood-onset gender dysphoria, the large majority of those kids not evidence single one but the large majority of those kids just turn out to be gay or adolescent by the time puberty hits but for adult it's very rare.

Also for the children they're roughly two-thirds, roughly, three quarters biological male. Some females. Mostly they're biological boys. And as I say, by the time puberty hits, sex drive kicks in, they start experiencing their sexual attractions, which then is their indicator oh, I understand now, and that's when they understand that they're gay or adolescent.

For adult onset, it's a completely different phenomenon. Much more closely related to just an erotic interest in -- practically it only happens in biological males. They tend to come into the clinic in middle age. They tend to -- they experience an erotic attraction to looking female, to feeling female. They will masturbate, cross dress. I don't want -- I hate to use the word fetish because that belittles them. It's quite, quite profound to their experience, such that some of them that are otherwise mentally healthy do perfectly fine with the other sex. But it is unrelated to the phenomenon. Right down to brain scans, it is a different phenomenon from childhood-onset gender dysphoria. So those are the two nonoverlapping cluster that have been known for decades.

Q How has that changed in your experience in the last --

can you tell us when you might have seen the changes?
A As I said, it corresponds with the onset of social media. Beginning with social media in society, a completely independent different group of sex ratio, different age group, different set of mental health concerns with them. Sometimes we call them the adolescence-onset gender dysphoria cases because it starts after puberty, usually in the mid-teens.

Others have referred to it as rapid-onset gender dysphoria because they lack the history of experiencing this in childhood. It only started in adolescence. That group is not always but primarily biological female, they're different in age and they have a different mental health profile.

These are people who usually have, for example, autism spectrum disorder. Other subtle neurological signs. They often have borderline personality disorder. A different set of phenomenon that we didn't exactly see either in the childhood-onset cases or in adult-onset cases. There was some. That breakdown isn't perfect, but because the profile is so different and what's in common across all of these or as I say it started in the social media age.

The other mental health issues that these people have are as I said autism spectrum disorder and borderline personality which are deficit in social functioning, usually occurring in clusters in friendship, which suggests social contagion. And there are people whom -- for whom their fundamental desire is

to be treated different socially. It seems to be mediated by feelings of not fitting in with the people around them and the belief that if they lived as -- and it's not only, in fact, it's only a minority of the cases that actually want to live as the other sex -- instead, these people are reporting some ambiguousness in between status like fluid or nonbinary. Most of them are expressing discomfort with becoming an adult of whichever sex biologically their body is going to send them to. So they seem to be showing a much, much, more socially related problem where the kids -- where the prepubescent children are showing a much more sexual orientation related problem. Where the adults are showing, as I said, this atypical erotic interest with a long funny name but also a completely independent outcome.

Q Do you have -- I think we've seen in maybe some of the previous cases -- do you think this new spike can fairly be attributed to the decreased stigma about being transgender?

A There is no evidence to suggest that.

For example, you know gay groups -- I'm openly gay myself -- it's been associated usually with depression and anxiety but stigma doesn't cause autism. Stigma doesn't cause borderline personality disorder. So although it increases distress in general, it just doesn't fit the demographic or epidemiological pattern associated with it if it were just simple -- I shouldn't say simple -- a simple idea such as

saying stigma.
Q And you are not aware of any comparable spikes in older adults of either sex that would match what you have seen among adolescents?
A Exactly. It seems to be restricted to adolescent females who demographically are the most vulnerable to social contagion and to social influence. It's a particularly vulnerable time of life among people who, as I said, usually have a greater challenge in order to fit in socially.
Q You've been involved in academic research of mental health for several decades. Do you think it would be unethical to do Randomized Controlled Trials about the efficacy of treatments for gender dysphoria?
A No. I hesitate to say a blanket statement only because of the specific examples that were volunteered this morning. But if one wanted to, one could come up with an unethical RCT. But, of course, one can also come up with a perfectly ethical RCT. But we -- in order to make biological interventions for gender transition in order for that to be a viable option, we need to, as I keep pointing out, be able to assess it with a risk-to-benefit ratio. And the only way to do that would be with higher level, more reliable causal evidence that we don't yet have. In the US especially we've jumped the gun.
Q And what would you consider an ethical RTC as one example, for example, on cross-sex hormones?

A For cross-sex hormones, I would recommend one group getting psychotherapy only and the other group getting psychotherapy plus the medications to see if the medications added anything beyond just the psychotherapy.

Q And, in fact, would you agree it sounds like that sort of study is exactly what is being contemplated in some of the European countries or may be not exactly but that --

A They haven't yet released the designs that they're going to, and the UK has also announced it's also going to be trying puberty suppressing.

The other aspect that -- again, if this was being done properly from the beginning, we wouldn't be starting with nine and ten year olds. Because it's perfectly legitimate for people to transition at 18, the first experiment would be to say, okay, what if you could transition at 17 and we could randomly assign half of you going to transition at 16? See how that goes. If we find, you know, a workable dose response to that, okay, if that works, now let's try 14 and 16. Or if that doesn't work, our job is done and we know to keep with 18.

Q Last question. You have publicly spoken and written and testified about some of the issues in this case and have faced some personal attacks.

Why are you engaged in this testimony and writing and speaking?

A Oh, goodness. I'm a sex researcher. You can't do sex research without, you know, everything -- well, me especially because I do research in atypical sexuality, what my conclusion is with any of these issues, somebody on one side or the other is going to be upset. But my motivation is I'm just curious. I want to know what the right answer is. I appreciate people's discomfort with this or, you know, I have also been working on other even more controversial issues. It's just what's popular and not popular.

If we as scientists, if I as a scientist allow myself to just go with what popular or what's liked, nobody is going to get helped. Opinion has to follow the science. Not vice versa.

MR. BRADSHAW: Thank you, Dr. Cantor.

Nothing further from us.

THE COURT: All right. Thank you, Doctor.

Is there anything else you need to take up before we take a short afternoon break?

MR. BRADSHAW: No, Your Honor.

THE COURT: All right. Let's take ten minutes.

(Whereupon, a break was taken.)

THE COURT: Good after. Are you ready to begin?

MS. ISAASCON: I am.

Before I do, Ms. Pittman can you check on the time? I want to know where we are in our time allocation, if you

have it.

COURTROOM DEPUTY: I have that you've been talking for two hours 17 minutes. I told you, you were going to have to keep up with the time as well.

MS. ISAASCON: Thank you. I am ready.

CROSS-EXAMINATION

BY MS. ISAASCON:

Q Good afternoon, Dr. Cantor.

A Good afternoon.

Q Can you hear me okay?

A Yes, fine.

Q My name is Cory Isaacson. I'm one of the attorneys for the Plaintiffs.

Dr. Cantor, I'm going to start just by asking you some questions about your professional experience.

Am I right that you are a adult psychologist? Is that correct?

A That's correct.

Q And you have a private practice; is that right?

A I do now, yes.

Q Okay. And is it right that your private practice focuses on providing sex and couples therapy?

A That's correct.

Q And you see primarily adults?

A Ages 16 and up.

Q Ages 16 and up.

Have you ever provided clinical care to transgender children who are prepuberty?

A Prepuberty, no.

Q Have you ever provided clinical care to transgender adolescents under the age of 18?

A Yes. The bridge between 16 and 18.

Q And about how many patients would you estimate that you have treated in that age range?

A About two dozen. If that were a substantial source of my income, that would put me in a conflict of interest for assessing the research on it.

Q About two dozen transgender adolescents between 16 and 18?

A To call them already transgender is to assume what the correct answer is when you are usually coming in with concerns and questions and it's not clear.

Also, to say that they're transgender is to assume what -- that we're -- we and they are using transgender to use the same term, which isn't exactly accurate. It would be much fairer to say that these are kids who are confused. They are not sure where they fit or what would make them happy.

The more typical situation is that these are kids in distress. Something is wrong. They're often coming in already attributing it to gender or when they try, you know,

on the internet or hearing what their friends are talking about, you know, it becomes an explanation for them. But to say that they are transgender, again, is to assume the answer as well as to assume that everything that follows from that label would be true, that transition is the way the only way or the best way for them to be happy. And we can't help them figure that out by already assuming what the answer is.

The same problem happens if somebody just attends a gender-affirming clinic. If they're calling themselves a gender-affirming clinic, they have already decided what the treatment is before they've seen the patient.

Q So, Dr. Cantor, I just want to be clear. I'm not talking about in that question a hypothetical group of patients. I'm asking you when you say that you have treated about two dozen adolescents in that 16 to 18 age range, are you saying that you have treated those approximately two dozen patients for -- I see that you take issue with me using the word transgender. Would you describe those patients as having had come to you for issues related to gender identity? In other words, what I'm asking you is whether you treated those 16 to 18 year olds for other reasons outside of reasons related to their gender?

A That was kind of long. I don't so much take issue with your use of the word transgender because so many people use the words to mean so many different things. I can't take for granted without having said what we mean to take for granted

we are using the word in the same way.

These words -- mostly kids in distress, they had questions wondering if their issue was about whether they would be happier living -- they were mostly biological female. Questions about what would resolve their distress. Are they really female or as is typical in that age group, they weren't identifying as male. They were unsure. Am I fluid? Am I nonbinary? Or they had other kinds of issue and didn't initially get it and automatically assumed that the other discomforts and distresses that they were experiencing, they either -- I'm hearing a feedback. Is that just me?

Q I don't hear it.

A Tell me if that's not loud enough.

Now I'm getting it again. I'm sorry. I think I'm making it worse.

Q Now I hear it.

A I don't think I can tune it out from here.

Some of them are assuming that the source of their distress was about their gender identity and some were assuming that it wasn't.

So usually people come in with some concern over sex one way or another and they have had questions about it.

For some of them, yep, they continue down the path of medically transitioning. Others didn't. Others, you know, changed the labels that they used to describe themselves, you

know, and then resolve whatever the distress was and check in to have a good time. And I hadn't seen them -- one or two I have heard from since. Does that --

Q A little bit. I just want to make sure that I'm getting a clear answer. So what I'm trying to ask you is about the extent of your clinical experience relating to adolescents who are presenting with issues related to gender identity.

So tell me if I'm hearing you correctly. What I hear is you have clinically treated roughly two dozen adolescents exclusively from the age of 16 to 18 who have presented with issues related to gender.

Is that accurate?

A The number is accurate. It's the characterization of patients. As I said, the trans term makes the assumptions about what they are coming in with, what they're self labeling with.

For example, a lot of them, as I was saying before consistent with the research for lot of these people what they're calling a gender identity issue is actually a sexual orientation issue.

Biological female who's, you know, kind of a Tom girl, kind of masculine and feels insecure. Doesn't feel very womanly, so she is referring to herself as having gender issues, but that's more discomfort with her just being who she is and then her trying to figure out, you know, goes through

the decision-making process. Should she use, you know, should she transition socially? When or how much? Should she try going through physiological changes or not? But to say that, you know, she was transgender, well, that's the question she had walking in with.

Q And I think I had asked if they presented with issues related to gender. But let's move on a little bit.

Do you recall testifying in a case in Alabama --

A Yes.

Q -- recently. Tucker I believe?

A That was the name of it then. It's been renamed since then.

Q And do you recall testifying in that case that the extent of your experience working with transgender adolescents -- and I understand you take issue with that phrase but that's the phrase that was used there -- that the extent of your experience working with transgender adolescents consisted of counseling six to eight transgender patients between the age of 16 and 18?

A Sounds about right.

Q So you remember giving that testimony?

A Yes.

Q That sounds accurate?

A Yes. At that time, yes.

Q Okay. And that was in 2022. Is that correct?

A I think it was about a year ago, yes.
Q Okay. Thank you.
One other question related to that. Your licensing doesn't allow you to treat young people under the age of 16; is that correct?
A Correct. It's because my intent was always to be a sex and couples therapist and until recently, as I said until recently until the social media age for children that was irrelevant, so I never pursued the extra, you know, couple of months training, couple months of practical experience that it would take to extend my license, because my career and the intent for my career was primarily research. It just never -- it was worth it to me in order to do the extra to start seeing the kids.
Q And, Dr. Cantor, as you eluded to in your direct testimony, gender dysphoria in children and adolescents does not necessarily present the same as gender dysphoria in adults; is that correct?
A Yes. All of the research is very -- not all the research that but -- you know, acknowledge that there exists a difference and has been able to demonstrate that these are different phenomenon that look the same, really very superficially.
Q Have you ever diagnosed a child or adolescent with gender dysphoria?

A By child, I assuming prepubescent adolescent.

It's never been relevant in the context I've been in. The method of insurance payments that's covered, you know, in my clinic was covered just for an hour of psychotherapy. It didn't require a diagnosis for their insurance coverage. And when they came to me, it was still a question of whether they wanted to go through physiological changes, so they didn't need a letter from me or a formal diagnosis from me in order to receive it.

Q So the answer is no you have never diagnosed adolescents with gender dysphoria?

A Correct.

Q Or a child?

A Correct.

Q Have you ever treated a child or an adolescent for gender dysphoria specifically?

A Again, most of my practice is helping these kids work through the related issues in order for them to be able to make a decision about what to do about it. I'm not sure if that counts as treating them for it. You know, I never had a conclusion such that we have to get them to the physician so you can transition. Nor have I ever been in a position where oh, okay, we have to do something to kind of make you go the other direction either. It was let's go through your thinking, how your experiences are, you know, talk about other

kinds of issues that are going on so that when you make a decision for yourself, you can feel confident that, you know, this is, you know, we have tried all the alternatives and this is the next right step for you. So I guess it's actually the phrase treatment for. I'm not sure that that counts as treatment for. I'm treating for their distress or the thing I'm trying to treat is their distress.

Q Well, it seems like if you have never diagnosed a child or adolescent with gender dysphoria, then you would not be treating them for gender dysphoria; is that right?

A No, I don't think that's true. As I said, there are kids coming in upset, unhappy, depressed, anxious. So then we start talking about things that make them anxious. The things that make them depressed. The things that they tried for self soothing. The way that they think about themselves in life. The comfort that they have introverted, extroverted. Things in their lives, relationships with their parents and the rest of their family. All of which relate to their living and their lives but none of that is in any direct way we're going to get you transitioned. We are going to take of you so you can go through transition. Nor is it saying we have to take care of these issues so you don't feel gender dysphoric. The kid's in distress, so let's work on the distress and see if they still feel dysphoric after they, you know, no longer feel anxious or profoundly distressed.

Q Again, Dr. Cantor, do you recall testifying in the Alabama case?

A Yes.

Q Do you recall in that case that you testified that you had not ever treated a child or an adolescent for gender dysphoria?

A As I recall the context around that question, it was more specifically about whether the kid would be prepared for and qualified for transition. So I have done it in that kind of context. As I said, usually it's in distress and we're trying to figure out how to get those unhappy kids to become a happy kid.

Q Just one moment.

If you would, Dr. Cantor, I want to make sure that we get the context clear around the question from the Alabama case. And I'm going to read from the transcript. And I'm happy to show you a copy, if you'd like to see it. We can put it up. I have a hard copy, but it may be easier to put it up so that everyone can see.

This is Cantor 1 and we're looking at Page 2. And we are at Line 16.

And, Dr. Cantor, please let me know if I'm reading this correctly.

The question posed to you was: You never treated a child or an adolescent for gender dysphoria?

And you answered on Line 18: Correct.

Did I read that accurately?

A Yeah.

Q Okay. Thank you. We can take that down.

Dr. Cantor, do you have any experience in monitoring minor patients who are undergoing gender-affirming medical care?

A No.

Q Okay. So, Dr. Cantor, despite your limited experience with gender dysphoria and adolescents, you did opine a lot about adolescents and gender dysphoria in your testimony?

A On the science of it, yes.

Q So that was not based in your clinical experience but on the science as you say?

A That is correct.

Q Okay. Dr. Cantor, you also testified about social media having an impact on gender dysphoria and adolescents; is that correct?

A I don't know if I used the word impact. It's hard to avoid that -- the pattern is exactly overlapping. This isn't a mere correlation. It's identical. Youth today -- and the studies and over and over again this really started roughly 2010, 2012, rights of anxiety in general in adolescents today, rights of depression in general, suicidality skyrocketing, although especially in this context people talk about those

rights being high in transgender kids. They're high today in all kids. And gender dysphoria, the exploding rates of gender dysphoria. The frequency of them have been, as I say, you could put the graphs on top of each other. Identical. So it's really hard to avoid the hypothesis that, you know it's all been a result of social media, but just like with everything else, you know, I can't make a casual conclusion but we sure have to give that some very, very serious thought.

Q So just to be clear, that is a hypothesis?

A The word impact is. It's -- the correlation is, as I said, you know, extremely strong. We have to take that idea seriously but I can't necessarily conclude it. It is still just a correlation.

Q And the studies and research you just referred to are related to mental health generally and the rise of social media not to gender dysphoria specifically; is that right?

A There are existing studies on the timelines of mental health issues in general, which are the ones that show the anxieties and the depressions being strongest.

The studies on gender dysphoria have been in -- the studies on gender dysphoria have also included depression and anxiety. But I don't recall offhand an epidemiological study looking broadly at mental health in general in adolescents today that also included gender dysphoria. So they overlap but I don't know if there is one study, one broad scale,

epidemiological study that included gender dysphoria with it.
Q And I'm asking specifically about studies dealing with the relationship, if any, between social media and gender dysphoria.
A Those studies primarily are the Littman interviews with the parents who have indicated regularly that the parents noted that it was during the period of furious almost obsessive involvement of these kids with social media. But -- it's, as I said, interviews with parents and so it's hypothesis perfectly legitimate, perfectly logical and so it takes -- so it requires some very serious thought. It certainly explains all of the observations we're making. But just as I said, we can't randomly assign kids on the internet versus not in order to come up with a causal conclusion.
Q Okay. Dr. Cantor, is it right that until pretty recently you never published anything related to gender dysphoria in adolescents?
A Not as a single -- it was never the object of any of the studies that I have done, but it was included in other studies or relevant aspects were included within other relevant aspects I was studying.
For example, human development over the course of puberty. I have done studies on, you know, different aspects of human appearance, facial features and so on and how those develop over puberty, but I didn't do it with the intent to

apply it to the people with gender identity disorder.

The much more explicit question such as my peer-reviewed fact check of the AAP policy, the more directly relevant ones are more -- I guess it's about five years ago now -- sorry about five years ago now, I started.

Q Okay. That fact check that you just referred to about the AAP policy, that wasn't a research study, was that, that you published?

A I didn't collect data in order to do it. I simply took -- when the AAP policy came out, I was floored. You know, so I read that research. When all of the research was originally published, I had been following it. I know the people who wrote those studies for many, many years.

When I saw the AAP policy, I immediately saw that the studies it was quoting -- not quoting -- summarizing those papers didn't say what the AAP policy said they said. So all I did is go through their own reference list, said what AAP said and I quoted the original paper, which said not only did it not say what it was said to, they often said the exact opposite. So they both ignored all of the existing research at the time and not merely twisted or misrepresented. As I say, it said the opposite of the very papers they were relying on. I was stunned.

Q So that piece is reflected in your opinion of the -- based on your review of the research policy?

A No. It was not an opinion. As I say, I was able to quote and I submitted it together with my report here, reference after reference, showing each one quoting exactly what the original one said that there was no opinion. My views had nothing to do it with. It's their sources simply didn't say what the AAP said they said.

Q So it's a dissolution of your personal review of the studies that had been cited; is that right?

A I don't want to oversimplify -- well, I guess I do want to oversimplify it. When AAP said that Jones et al said the answer was 3 and then I just pulled out Jones et al. and I quoted and I said, no, the answer was 5.7. So all I did is one after another, show this is what AAP said and here is the original reference. There is no -- my opinion didn't -- I didn't express any motivation, attribute any motivation to AAP. I didn't suggest what their policy should be. There was no judgment on -- there was no room for opinion. It was a pure, pure fact check.

Q So just to be clear, Dr. Cantor, that piece did not reflect your -- any clinical research on your part?

A I didn't conduct any research in order to produce that paper. That's correct.

Q Okay. Thank you.

Is it also true, Dr. Cantor, that until recently -- is it also true like your list of publications, you have a very long

list of presentations is it also true that until pretty recently you had not presented anything related to gender dysphoria, particularly gender dysphoria in adolescents?

A Correct. Gender dysphoria in adolescents -- well, adolescent-onset gender dysphoria as I say, didn't exist until relatively recently.

Q Well, had you presented on gender dysphoria as the focus of any presentation beyond recent years?

A Not that I recall. I mean now and then it's relevant to mention, you know, when I was giving a relatively broad overview but it was never the subject of any specific presentation.

Q Okay. Thank you.

Dr. Cantor, while we are talking about your presentation, I do want to take a look at Page 12 of your CV that you submitted in this case. The header is Keynote and it provides addresses. So you list your recent speaking engagements there.

A Okay.

Q I don't see a presentation on this list for Alliance Defending Freedom. You have presented to Alliance Defending Freedom; right?

A Yes. They wanted me to participate in a Q&A session at a conference they had.

Q Is there a reason you didn't include that in your

reference?
A Yes. Because I didn't author it. I didn't write it. It was a question-and-answer session interview. It wasn't the kind of presentation -- it wasn't an academic presentation where I'm presenting research results or I'm presenting my opinions or my pre-prepared comments on a particular topic with Power Point slides showing, you know, whatever research or summary of research. To me, it was much more -- I'm also interviewed very often in the media, asking questions or podcasts that want to interview me with whatever question. I don't list those either.
Q Did you not include other question-and-answer sessions on other panels in your list of these presentations?
A I have a vague memory of there being an academic panel that had a Q&A as part of the title and as I say it was kind of a -- those were prepared comments in an academic forum as opposed to a regular -- as opposed to somebody else picked the questions.
Q Okay. Because I'm looking here and it looks like the second presentation titled No Topic Too Tough For This Expert Panel, A Year In Review, that was a Q&A session.
A That's right.
Q When was the presentation for Alliance Defending Freedom?
A I guess about a year ago.
Q And is my understanding correct that Alliance Defending

Freedom is a religious legal organization that takes a variety of positions that have been characterized as anti-LGBT and that they have, among other positions, fought against same-sex marriage.

A That's my understanding. And I said before, as a gay person myself, I had to do some serious thinking about whether I wanted to participate and in which way. And my ultimate decision was I'm a scientist and professor. I will answer questions to anybody who asks me. It's not my science. I know of it. I know the science thoroughly and I will present it to whoever it is who asks me. If I only presented, you know, science, which was created on public money, if I only gave it to people I like or people I agree with, well, I've now lost the objectivity that really to me is the most important part. You know, it's not up to me to be assessing, you know, other people's intent. It's been a very strange experience to me, essentially crossing the aisle. It's they did what -- I'm liberal, but to me that means being able to work with people who are different from me. Being able and being willing to work with people who don't think the same things that I do.

And they started the conversation with, Dr. Cantor, we probably disagree on every other issue but this one, so we're going to -- how about we work together on this one. To me that's what a liberal is supposed to do.

Q Thank you, Dr. Cantor.

Okay. Now I'm going to go through and ask you some questions about some of the studies that you talked about in your declaration.

A Sure.

Q I wanted to start with one authored by Schumann Crawford. I'm not sure if I'm pronouncing that right, but I assume it's S-c-h-u-m-a-n-n.

A I think so, yes.

Q Okay. And that's a study that you cite to as essentially rebutting the Olson et al. Study?

A Correct. Schumann colleagues obtained and reanalyzed the original paper demonstrated that, again that original -- the data in that original paper did not say what they claimed it said but it analyzed improperly. And when analyzed properly actually said, well, resulted in some cases the opposite.

Now that does sometimes happen but it's inappropriate and what happened very, very often. Again, this is a highly, highly politicized environment. People were citing one and not the others. That's just not a legitimate way to tell anyone what the science is. If it's mixed, it's mix. If it's one way, if it's the other way, present that. But what I have seen over and over again in the media or in other as I say politicized environments, people are citing one and not citing that first. That that was a correction published to the

original.
Q Well, are you aware that the Shumann Crawford authors has been criticized from peers in the past for taking some controversial stances?
A I would not be at all surprised.
Q Okay. And you are aware that Schumann Crawford, the same authors in this study that you cite as you essentially rebutting the Olson Study, that they previously wrote an article in which they claimed there is a great deal of evidence that homosexuality is strongly associated with having been sexually abused as a child?
A I don't remember that particular claim, but I have no reason to deny it -- to deny it either. My concern -- my sole concern is on the data. When the data are analyzed properly, the data are analyzed properly. If I only believed or I'm only willing to entertain the analysis from people whose politics I liked, I've stopped being a scientist and I've started to be an activist. Somebody I don't like can have the right answer.
Q Well, the quotation that I quoted was not a political position and it may also reflect that personal political position but they presented that conclusion as a research finding.
A Same story. If there is analysis that somebody did and it's proper in one paper, it doesn't mean that they didn't

make a mistake in another analysis on another topic on another paper. I evaluate and all anyone should do when evaluating a particular analysis is on the basis of that analysis. That's why blind review is blind.

Q Okay. One more questions about that Schumann Crawford Study. So we heard a little bit earlier about Linacre. Please tell me if I'm pronouncing that accurately.

A Yeah. I think it's Linacre but I couldn't -- again, it's -- I don't circulate regularly in that world either. I know of -- I remember typing it out as I was listening to the citation.

Q Well, I'm going to defer to you. Linacre. It sounds better to me. So are you aware that the Schumann Crawford piece was published in the Linacre Quarterly?

A I would have to check my notes to doublecheck. That sounds about right.

Q And as we heard in earlier testimony that's a ethical journal, not a medical journal?

A Again, that would not surprise me. My concern is with the contents of the analysis. Unless somebody can present me with, you know, reasonable evidence of out and out fraud, that's one thing you, but, you know, I don't like the politics. I don't like the group. I don't like other statements they had. My job is to be -- my job is or the job of a scientist is to ignore all of that and look at the

evidence.
Q Thank you, Dr. Cantor.
Let's move on to another study you cite in your report. Achille?
A Achille.
Q I was really sure that I got that one right. I guess Achilles heal does not apply in this.
A I wouldn't put anything past anybody.
Q Okay. So, you cite Achille et al under the header in your report, a study showing that there was no advantage of the medicalization over psychotherapy. Does that sound accurate?
A My classification sounds correct. It's just because I'm actually no good with names myself and it's easy for me to mix up studies. Could you tell me what tab it's under.
Q The study I don't think it's in any exhibit list but I do have a copy and I can point you first to where in your declaration you talk about it. It's on Page 111, believe.
A Does that mean one of these books? I have a copy of my own report.
Q You should have an expert report binder. I think it's 111 is what I have.
A Start me with which tab I'm in.
Q On that one, I'm not sure. It should be a table of contents at the beginning that says which report is under

which tab.
A This notebooks says Plaintiffs' Exhibit list.
Q That was not the right binder.
MS. ISAASCON: Can I help him find it?
THE COURT: Sure.
A You said paragraph was that 111?
Q Page 111.
A Page 111.
Q And, actually you can look first at Page 110 for the header I was referring to before, Header C.
A Oh, yes.
Q So the header says two studies, I assume?
A Yes.
Q No advantage of medicalization of physiotherapy and then 111 is your --
A Yes, I remember.
Q -- discussion of --
A As I said, usually it's just names and from the name of the study, I can't always -- now I remember.
Q Very, very reasonable.
Okay. So in your declaration you say that this study -- and again I'm looking at Page 116 -- you say that the study found medicalized transition was not associated with improved mental health beyond improvement associated with mental health care received.

A Yes. Further after that, you know, again saying specifically that more specific they used 12 different ways to try to assess the mental health of kids and out of them 11 showed no difference. And of the other one, again, it's statistics. Every time you roll the dice, you know, there's a greater chance of showing whatever it is you want. So if you don't specifically control for how many times you've tried getting the answer you want, just getting one positive answer out of a large body of them essentially doesn't count.

So I feel like I have to say that with more statistical ease. There is statistical ways to control for how many times, how many different ways you have tried looking for one thing. Because none of this is -- because this isn't physics where we can just say, you know, the ball dropped or not to see if gravity still works. This is statistics.

We call the difference between two groups significant if the difference between them would be unlikely to occur just by chance. But the more often you do it, sooner or later, you're going to get a difference just by chance. And so what you're supposed to do in a proper study is control for how many of these comparisons you've run.

This study didn't. So because it ran 12, just finding the one that was statistically different, as I say, doesn't count as that's, you know, much more plausibly attributed to just how many analyses they ran.

And so one can no longer statistically and properly come to the conclusion that, you know, they didn't come to this just by change because I tried it so many times and this one just happened to have come out. So, therefore, I put it in that description of how I classified the studies goes.

Q So I think I heard you say 11 of the 12 predictors came out as showing no effect; is that right?

A No significant.

Q No significant effect?

A Not statistically -- there was no statistical association between the change, post scores and treatment.

Q Okay. I just want to make sure we get this right. So as I understand your testimony and as I understood your declaration, you seem to be discounting the results of the study because the majority of the findings were not statistically significant. Is that right?

A It's fairer to say, again, because it is statistics and it's not going be black and white, you know, it comes down to probability. And the way that they just kept rolling the dice, rolling the dice, and came out with a result that is distinguishable from random, we can't call that a reliable finding.

Q And that was just exclusively the test for statistical significance and not to test for whether there was an effect in the studied group; is that right?

A In research design. Those are synonyms.
Q Effect size and statistical significance are synonyms research?
A Statistical significance is the test for whether the effect size could have emerged purely randomly. I don't know if I can remember the formula but the translation between effect size and statistical significance are related by sample size.
Q Um-hmm.
A So if you have a large effect size, if you have a very big difference between the groups, then you don't need a very large sample in order to be able to show it. If you have a very, very small sample or said the other way, if you have a small sample, you will only be able to detect large differences.

The flip side, if there is only a teeny tiny difference between them, you need a very, very -- you need a large sample in order to be able to detect it at all.

When I teach statistics, usually I compare this to a telescope. The more powerful the telescope, the greater my ability to see teeny tiny things that are far away. So if I have a large sample, I can see very small effects, but when we're talking about medical outcomes, what we are looking for is large effect. If there is a -- whatever. If there is a depression score, people scores can go from zero to a hundred.

So I find that people scores went from 52 to 54. Well, if I have a very large sample, statistically, I can say that's significant because it's reliable. It's unlikely to have emerged from chance. But if I'm going to say this person is going to undergo medical treatments and, you know, go through the risks of harm that might come from, well, that two point difference isn't clinically meaningful, even though statistically it would be reliable.

Q So it sounds like statistical significance is pretty closely correlated to sample size; is that right?

A One is a function of the other, yeah. Statistical significance is a function of two main factors, the effect size and the sample size.

Q And, Dr. Cantor, what is effect size?

A Again, I feel like I need a chalk board.

Q In the layperson's terms.

A That's the hard part of the translation. If I can do a formula I can explain it. Like I said, concentrated in math. I can say in calculus. Effect size is a way that measures the amount of difference between two distributions. By distribution I mean if I talk about actually height, human height would be a good example. If I just say that on average a biological men, biological women, that's not particularly controversial. But in order to do statistics, I need some kind of unit which is universal. It can't just be inches or

centimeters or seconds or points of depression. I need -- for running the statistical test, I'm comparing the actual normal curve that one would presents versus another group presents. And it doesn't matter what I'm measuring. I'm just looking at that distribution of the curve. So an effect size is that universal way of measuring the distribution of absolutely anything, whether it's height or weight or seconds or whatever the unit is.

So an effect size usually over -- under .3 would be called generally small. Between .3 and .5 medium. Generally above that we would usually call a large effect size in general. And when I say that, I'm limiting that to the mental health world where we are giving somebody, for example, a questionnaire about depression. One questionnaire might have ten questions. Another questionnaire might have 50 questions. They have different kinds of questions. So they come up with different scores. But by translating all of that into this universal unit less measure is how we are able to compare no matter what the test was, no matter what the depression test was, we can compare them test to test to test, study to study to study.

But if we're talking physics, you know, now we can talk teeny, teeny, teeny tiny things where we can measure them accurately. So when I say .3 .5 and above .5 those are the usual cutoffs for mental health research.

Q Is effect size essentially how big the effect is?
A It's a way to measure how big of a difference in the distributions between two different groups.
Q Okay. Great. And let's actually -- actually, I want to ask you, you were sitting in here earlier when your colleague Dr. Hruz testified; correct?
A Yes, I was.
Q And he talked a little bit about effect size and statistical significance. Do you recall that?
A Yes, I did.
Q And do you recall him saying that if a study -- something to the effect -- I'm sure I didn't capture verbatim -- something to the effect that if a study shows minimal effect but high statistical power, statistical significance, then it's not clinically significant?
A The way you phrased it doesn't sound quite correct. If it's a very, very large effect, it will be statistically significant. And will -- can also be clinically significant. But a teeny tiny effect can be statistically significant without being clinically significant.
As, I say if somebody just gets a two-point difference on a hundred point scale, it could be statistically significant that is reliable we would expect to see the same thing on -- in another study -- but it wouldn't be clinically significant because it's not large enough for them to make a difference in

the person's life for them to be able to notice.

I guess I'll use metaphoric would be to say, if I have a microscope, I can say, yep, there are three bacteria on this slide, but to the naked eye, it's not going to make a difference to anything.

Q Okay. Dr. Cantor, I would actually like to show you a journal article about statistical significance and effect size. If I can ask you a couple of questions about the findings in that journal article or the conclusions and explanation this that journal article.

So this is Cantor 9. we can start at Page 1. We can scroll to the top just to see. This is the Journal of Graduate Medical Education and it seems their intent is to try to explain these very complicated concepts as you demonstrated in more straightforward terms.

So if we can scroll down to the bottom of this page please, I have these highlighted just to help point me to them, but I don't mean to distract from that. It looks like they may define effect size of that magnitude of the differences between groups. Does that sound right?

A Sure. That will work.

Q And if we could go down to the second page. So at least according to these authors findings, they state that the effect size is the main finding of a quantitative study. Would you agree that's what they state?

A That's what this says, yes.
Q Okay. And then if we scroll down a little bit more, of course, under the header Why Isn't The P Value Enough, am I correct that P value stands for statistical significance essentially?
A A measure of statistical significance, yes.
Q Okay. Great. And they define statistical significance here as the -- similar to how you to describe it, the probability, the observed difference between two groups is due to chance?
A Yes, that's correct.
Q Okay. I think we can pull that one down.
Actually so now that we've spent a lot of time on statistical significance and effect, I'm actually going to go back to the Achille Study, if we can.
So, again, to return to one of my first questions about your statements regarding the Achille Study, you concluded that the Study found and I quote from your declaration that medicalized transition was not associated with improved mental health beyond improvement associated with the mental health care received.
Is that accurate what your conclusion was?
A Yes, roughly.
Q Is that actually what the Achille Study found? Did they have a similarly-worded conclusion in that study?

A I don't know. That's one of the problem with it is they -- that's become -- I don't know if I want to say ubiquitous but very, very common in a lot of these studies. They will do something inappropriate statistically or scientifically inappropriate, show that -- find results ambiguous or inconclusive but then describe them in the publicly available abstract, describe them as if they are very strong or they'll define them as I said very ambiguous results and only give a piece of them.

One of the studies that was being discussed earlier, the Chen Study for example, set out to examine eight different variables of mental health but only reported two of them. The WPATH Standards throughout the document itself keeps concluding over and over and over again not enough studies, we're not sure. This is ambiguous. This is unclear. But then, assert a very strong conclusion, which is the only part that people read when somebody is going through with what we often call motivated reasoning. Lift out a quote, ignore everything else around it and without the rest of the context, say something very strong when the evidence just isn't there.

Q Well, this is where our understanding statistical significance and effect size may be helpful. So looking at the Achille Study -- I am on Page 3 of the Achille Study -- does it sound right?

A Hang on. I had my report. The Achille Study.

Q I can -- I can pull that up. I have that with me. It's not one of the submitted exhibits. It's one being used for impeachment, so we have not submitted it. We have Cantor 10, and I'm on Page 3. I am on the left-hand column under the header Regression Analysis. Okay. And I am on the fourth line in that paragraph, and I'm going to read and you can let me know if I'm reading accurately.

So they concluded that given our modest sample size, particularly when stratified by gender, most predictors did not reach statistical significance.

Did I read that correctly?

A That's what that says, yes.

Q Okay.

And then I'm on the next sentence. It says this being said, effect size is valuable where notably large in many models. Is that also correct?

A That's what that says, yes.

Q Okay. And so, again, you concluded that this study demonstrated no improved mental health outcomes, based on the lack of statistical significance; is that right?

A In general for the relevant ones, yes.

Q Okay. And so let's actually go to Page 4 of this same study and the Conclusion section.

It reads our preliminary results show negative associations between depression scores, suicidal ideation and

endocrine intervention while showing positive association with intervention and transgender use over time.

Did I read that accurately that was their conclusion?

A I'm sorry where? You lost me.

Q I'm in the Conclusion header on Page 4. The paragraph starts transgender children -- I was reading the second sentence in that paragraph.

A That's what those words say but they are engaging in exactly that kind of -- it doesn't -- in saying that, those are the non-significant results. They're saying what's above zero and what's below zero but none of those were reliably different from zero. That's what made them non significant.

Q But they did note large effect sizes. Is that correct?

A That's what they said. They just did an analysis where those -- the size of the effect sizes is exactly what's in doubt. Because the samples were relatively small, they don't have a reliable estimate of the effect size in the first place.

Q Okay. Thank you, Dr. Cantor.

Okay. Let's move on to another study you put under this same header, No Advantage of Medicalization Over Psychotherapy. That's the Tordoff et al. Study. I'm looking at page -- I have it as Page 117 of your declaration. It's actually Page 112 of your declaration.

A Yes.

Q Okay. So this study actually found that their conclusion was that gender-affirming medical care was associated with mental health improvement; is that right?
A That's what they said and that was -- as a matter of fact, this particular study is one of the most glaring examples of people describing their study that's showing something that it doesn't. I don't remember if they put it in the graph within their study. Their study didn't show any improvement at all. It was a flat line. It was that their control group got worse.
Q I understand that you take issue with their conclusion, but what I'm asking now is are those the conclusions that they made in the report?
A That's not the description that they gave of their conclusions, no.
Q They did not give a description that said that they found that medical care, gender-affirming medical care was associated with mental health?
A Did I say it backward? What you read on the page was correct.
Q Okay. Great. But you did not mention in your report that they had -- the authors themselves made that conclusion, did you?
A Correct.
Q Okay. Great. And then I actually want to ask you a

question about Chen, which you had talked about in your direct testimony. I think I heard you that you said people dropped out because they weren't being helped by the treatment.

A Oh, I didn't say because. They didn't pursue, they didn't try to find out why. They reported only that I think they said a third of them dropped out. So what I'm pointing out is that with dropout rates that high, that right there can create this statistical illusion of improvement because the people doing poorly left. Well, when the people at the bottom half of the curve leave, well, the average goes up, even though there was no effect of the treatment, which is why we cannot conclude from their analyses that there was improvement. What we're seeing is just as easily attributable to the people not improving dropping out.

Q So I just wanted to clarify. That's your speculation as to why they dropped out, but I just want to clarify the study itself does not say that's why people dropped out?

A Correct.

Q Okay. Great. Let's move on to surveys.

You talked a good amount about survey studies in your report and in your direct testimony. In your direct testimony, I think I heard you say that survey studies don't fall on the Pyramid of Evidence at all.

A That's correct. They are not systematic.

Q Yet, you rely on survey studies in your declaration,

don't you?
A Depending on the context they can yield some information, but not -- they don't give treatment outcomes.
Q Okay. But you do rely on, for instance, the Littman survey that I also heard you reference earlier in your testimony; is that right?
A Correct. It's not a outcome study.
Q Okay. It is a survey?
A A survey, yes.
Q Okay. And you relied on that survey in your declaration to explain the term rapid-onset gender dysphoria; is that right?
A To explain it was, you know, in the presentation of that paper that Littman suggested that term, which very well captured what we were observing, so the term caught on very quickly.
Q Okay. And you cited that survey to conclude that what is called rapid-onset gender dysphoria is associated with increased social media use; correct?
A That's what the parents in the survey were saying, yes.
Q Okay. And the survey, like you just referenced, it did only survey parents; right?
A Correct.
Q Not young people or clinicians?
A Correct.

Q And you acknowledge in a footnote in your report that the Littman Study faced criticisms and was republished with additional details; is that right?
A That's correct.
Q Okay. Are you aware that it was actually republished as a correction?
A That's standard in a editorial process that changes are just automatically called corrections, but it doesn't indicate that anything -- none of the conclusions changed, none of the data changed. It was -- the only change was that they added more detail. The only criticisms that were ever given was, well, what if this sort of happened with the other thing. So she added to her report, well, this is the answer to this. This is the answer to the other and everything else was the same.
Q Let's pull up that correction. That's Cantor 11. So I'm looking on the first page. So right Under Notice of Republication it says after publication of this article, questions were raised that prompted the generals to conduct a post publication of the assessment of the article and then it goes on and we can scroll down a little bit and slowly we're under emphasis that this is a study of parental observations. So it looks like we're four lines down from that and you can let me know if I'm reading this correctly. Rapid-onset gender dysphoria is not a formal mental health diagnosis at this

time. This report did not collect data, from any adolescents or clinicians and therefore does not valid the phenomenon.

Did I read that correctly?

A Yes, that's what that says.

Q And if we can go to Page 3. Again, I'm sorry for the highlights. I hope that's not distracting.

Okay. If we can scroll down a little bit more. So this is under the header Updated Information About Recruitment. So I'm looking at the highlighted portion at the bottom. I'm going to start where it says specifically. Do you see that?

A Yes.

Q It says specifically three of the cites that posted recruitment information expressed cautious or negative views about medical and surgical interventions for gender dysphoric adolescents and young adults and cautious or negative views about categorizing gender dysphoric youth as transgender. And one of the cites that posted recruitment information is perceived to be pro gender affirming.

Did I read that correctly?

A Yes. That's what that says.

Q Okay. Okay. Great.

And to be clear, it says earlier in the paragraph that they identified four websites where the survey was distributed, and so these sentences are saying three of the four were later revealed to be from cites that had expressed

cautious or negative views about medical interventions and one was revealed to be a cite that was perceived to be pro gender affirming; is that right?

A You used the word revealed but there was never a secret it wasn't going to be uncovered. People just wanted more details, so she added the details or added the details that were being asked for.

Q But this was not added until the correction was --

A Correct. As I said, it was nothing wrong. The conclusions weren't changed. The data didn't change. There was a request for detail so that was one of the details that was added.

Q Okay. And I think I heard you say in your direct testimony earlier that survey studies are particularly suspect when they're online surveys. Did I hear you say that?

A For outcomes research, yes.

Q Okay. Great. I'm just checking my time. I have ten minutes?

THE COURT: I think you have been going for just over an hour, if I'm not mistaken. Is that correct?

COURTROOM DEPUTY: Yes, it is.

MS. ISAASCON: We're stopping at 5:30?

THE COURT: I don't have a hard stop but I'd like to be mindful of our court security. I would ask you to wrap it up.

MS. ISAASCON: I'm towards the end.

Thank you, Your Honor.

BY MS. ISAASCON:

Q Okay. I will skip to your testimony about other cases. So I'm looking at the last page of the CV that you submitted. And according to last page of the CV, I think we are at Page 32.

So am I right that in the past two years you have testified or been an expert in quite a number of cases related to either issues related to transgenderism if you want to use that term or related to gender dysphoria? Am I right?

A The answer to those these days, those are the questions I'm usually getting, yes.

Q And can you estimate about how many of the most recent 20 are cases related to those issues?

A The past year and a half, it's been the majority. So of those 20, probably would be 17 or 18.

Q Okay. Now I'm going to ask you a couple of questions about your opinion about treatment options and what should be available. Do you believe that medical intervention can sometimes be appropriate for gender dysphoria in adolescents?

A In theory, it is possible. It's not like we have research that specifically rules it out. But the decision is not a dichotomy. The decision is a risk-versus-benefit analysis, given an uncertainty of the available data. The

risks are very specific objective, you know, and identifiable. The benefits, ambiguous, inconclusive and we're not so sure. And that's exactly what all of the systemic reviews have unanimously revealed. But that's -- I can't say and I have no reason to say that there's proof that they will never work and we will never discover an accurate way of identifying which kids would benefit and which kids would not. But given the risks and given the unbridled assumption that the kid is always right when it's a kid struggling to figure out something they don't quite understand themselves, the US has gone in a very different, very dangerous direction. Unlike the rest of the world, it's -- rather than assuming that the kid is always right and doing everything we can to say this eight year old knows what it's going to want when they're a particular age later, this is -- that's just not how one assesses risk-to-benefit ratio.

If we had solid evidence, if we could be more confident in our diagnoses -- as I said, I have no ideal logical opposition to it. I just want to apply to this the same level of questioning that we apply to everything else. But in the US, it's been skipped. The largest difference between the American system and the National Public Health Care Systems as I say, which has been unanimous, every one reviewing this evidence coming up with the same conclusion, the differences between the American system and the National Public Medical

System is in public health care systems, they owe their allegiance to the public. Their job is to protect the public. Medical professional associations, their job is to protect the medical profession. The oppositions coming from them don't resist -- are not about protecting the patient. They are about opposing government regulations of medicine. This just happens to be the issue.

But the job of those associations is to not let government tell doctors what to do. In many particular case, the professional associations, the medical associations by jumping the gun and engaging in risky interventions without sufficient evidence, they're not doing what they usually do and what they're supposed to do to the extent where government have stepped in and say, nope, our government is overreacting. That's a legitimate question. But if the medical professional associations were doing what they should been doing in the first place, we wouldn't be here at all.

Q So, Dr. Cantor, let me ask you, you have a website; correct, where you blog posts?

A Yes. I very rarely use it anymore but yes.

Q Can we pull up Cantor 12.

And this is an article of a blog post that you posted on July 8th, 2020. Does that look like your piece?

A Yes, it looks like it.

Q If we can scroll down to Page 2. No, actually a little

bit up. Yeah. Perfect. The top of Page 2.

So please let me know if I'm reading in correctly. Relatedly, there also exists debate over the age at which a youth could be permitted to begin to transition socially and/or medically and then you list different ages where the debate exist.

Next paragraph. I support age 12. Not for any ideological reason because that is what the current evidence supports. The majority of prepubescent kids cease to be trans during puberty. The majority of kids would feel tran after puberty rarely sees.

Did I read that correctly?

A Yes, you did.

Q Thank you.

MS. ISAASCON: Thank you very much.

No further questions.

THE COURT: Do you have any redirect?

MR. HARRIS: Sixty seconds.

THE COURT: Yes.

REDIRECT EXAMINATION

BY MR. HARRIS:

Q Just a very small number of questions, Dr. Cantor, just to give you a chance to clarify.

You haven't opined here that social media is causing any changes in the profile of transgender patients, are you?

A That's correct. It's the most legitimate explanation we have so far but we have no proof of it.

Q You have testified, and correct me if I am misstating this, that there has been a rise in presentation of gender dysphoria in certain populations and we're still figuring out why. Is that accurate?

A Yes. It's an explosion and it coincides exactly with the onset of social media.

Q And then can the quality of scientific literature ever be reviewed by a non practitioner of intervention being study?

A In fact, that's the usual process. If it were only -- you can't tell the fortunate teller's validity if you are only asking the fortune tellers.

The way the systematic review process works is specifically to use only the people who are close enough to understand the material, but not actually invested in the outcome not the heads of the clinics.

Q Is the peer review editing of scientific journals ever done by people who don't perform the practice-based studies?

A That's usually -- journals are meant to be broad. And what the editors are reviewing is the process that revealed whatever it is being examined.

MR. HARRIS: Nothing further. Thank you.

THE COURT: I do have one follow-up question Dr. Cantor.

As I understand it, you come to some very different conclusions about what the literature says about the risks and benefits of cross gender hormone treatment that have a number of medical associations or organizations. You have talked about the American Academy of Pediatrics, WPATH, the Endocrine Society.

In your view, why has so many of these bodies read the literature so incorrectly and adopted treatment guidelines that are not in conformance with the science?

And feel free to correct anything you think I have got wrong.

A Because I haven't read it. They didn't do what they usually do. What they usually do and what they did do, you know, with other issues is conduct a systematic review, but they didn't for this one. It was just kind of a committee decision.

Again, I can't predict. I'm not sitting in on any of those committees and I shouldn't attribute to their mindset, but they didn't follow their own processes in the US. So that a lot of these conversations -- I say this as a dual citizen, so that's what's setting the US system and it's the American Medical Association, it's the American Academy, it's all of the Americans doing it. But as I say, in a public health care system, every single one of them who has conducted a systemic review came to the same conclusion. All of the ones in the US

have not conducted a systematic review.

So I mean it would be fair to say Americans one way, rest of the world the other way. But it's also fair to say conducted systematic reviews, did not conduct systematic reviews. I have some opinions or educated guesses about why. I think I just kind of ranted about them, but really they are not -- it's not that -- why they didn't come to a different conclusion.

They didn't read it. They didn't engage in the process that they normally do. They didn't make sure that the reports weren't getting cherrypicked. They didn't make sure that all the studies that they're quoting were being held to the same standard. They engaged in exactly the biases that the systematic review process is meant to excluded.

Now as I say, one can go through the various, you know, either financial or political reasons for potentially why and how this is going to make us look, that very many of these associations -- they're just trying to please the activists, avoiding trying to make too much controversy. They don't want the clinic or the hospital to become subject of protests. I get it, but they're not dealing with those concerns in addition to the research. They're answering those instead of the research.

So, for example, the publication I wrote fact checking the AAP, no opinions of my own. Just what they said it said

and here is the exact quote. What they actually said and in some cases it's the direct opposite.

Well, then, of course, the media then started going to them, well, what do you say? What's your response? None. They don't want to talk to the media. We have no one available to comment.

They can't and won't defend even their own actions. It's usually just some kind of politically -- they'll give a PR statement but if you ask them what do you think about the systematic reviews, why aren't you conducting the systematic? No answer.

One exception. Again, the AAP and it's exactly because I have a publication out just last week said they will now conduct a systematic review. They didn't acknowledge that they should have done it before. They didn't acknowledge how did you pass a policy? Shouldn't you have done that before you passed the policy? I mean none of the obvious questions were answered.

But the answer to your question is that they didn't do that reading of the research. They just kind of accepted superficially whatever seemed popular on social media or among whoever it was that was applying political pressure. Whatever the decision they made -- whatever the decisions they made, it was not based on the science.

THE COURT: Appreciate that input.

Counsel, anything else with Dr. Cantor?

MS. ISAASCON: Can I ask one more question just to clarify that last answer?

THE COURT: I think we are going to be done for today. It's 5:30.

This witness excused. Thank you for your testimony, Dr. Cantor.

All right. Counsel, we're going to deal the exhibits tomorrow, if I understand correctly.

MR. BRADSHAW: Your Honor, I think at the close of the hearing, we can make sure we have all the exhibits, that they are marked appropriately and entered appropriately. I don't know that there will be any dispute or disagreement.

THE COURT: All right. In that case, is there anything else we need to take up before we adjourn for the day?

MR. BRADSHAW: Nothing for the Plaintiffs, Your Honor.

MR. STRAWBRIDGE: We do appreciate the Plaintiffs' accommodations of the witness.

THE COURT: Thank you for running this like clockwork. It's made my job a lot easier.

I wish you all good evening and I'll see you tomorrow. We're adjourned.

(The proceedings concluded at 5:37 p.m.)

REPORTERS CERTIFICATE

I do hereby certify that the foregoing pages are a true and correct transcript of the proceedings taken down by me in the case aforesaid.

This, the 28th day of August 2023.

/s/Melissa C. Brock RPR, RMR
OFFICIAL COURT REPORTER